

SOUTHERN TEXTILE BULLETIN

VOL. 30

CHARLOTTE, N. C., THURSDAY, JUNE 3, 1926

NUMBER 14

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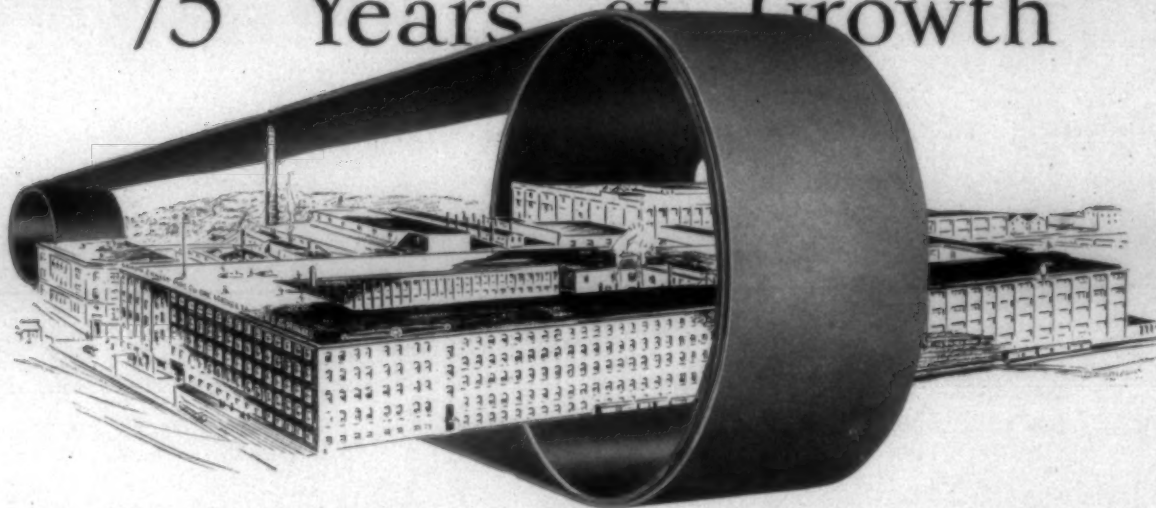
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ABOUT OIL STORAGE IN THE MILL

by Chas. E. Carpenter,

Near Editor

AWAY back in the prehistoric ages, when man enjoyed no personal liberties and governments limited their activities to the protection of their citizens, there came a most severe cold spell in the City of Galveston, Texas, and the entire bulk stock of whiskey, in barrels, of a certain hotel proprietor, froze solid. Said whiskey having been purchased from a supposed reputable concern in St. Louis, the hotel proprietor wrote a very strong letter of protest to the St. Louis concern, to which letter he received the following reply:

"The main cause of your complaint is due to the regrettable stupidity in our shipping department shipping you summer whiskey in winter time, but we believe you will be fair enough to agree with us that the freezing would not have occurred had you stored the whiskey in the proper sort of protected warehouse."

Likewise is it with oils. Please remember that oil is not a unit like unto water or alcohol. If you put either water or alcohol in a still and apply the heat, the first product that will come over will be precisely the same as the last and there will be no

residuum left in the still other than the impurities. But with oils it is different. The first product over will be different from the last and there will always remain a decided tar or residuum.

All oils contain greases in solution and all greases contain oils in absorption. All oils are solid at certain temperatures and all greases are liquids at certain temperatures, which merely means that all oils are liquefied greases and all greases are solidified oils. The ever working and never ceasing laws of nature—gravity, cohesion, adhesion, capillary force, etc., are constantly applying themselves to all products and this has a tendency to cause separation or disintegration. The constant expansion and contraction of oils or greases caused by solidifying and liquefying them by changes of atmospheric temperature will in time separate any oil or grease that has ever been known.

It is a wise precaution, therefore, that mills should so arrange their oil and grease storage that the temperature will vary as little as possible. This precaution will not only preserve quality, but it will also minimize loss from leakage, for it is the expansion and contraction, due to changes in atmospheric temperatures, that are responsible for 75% of all oil leakage.

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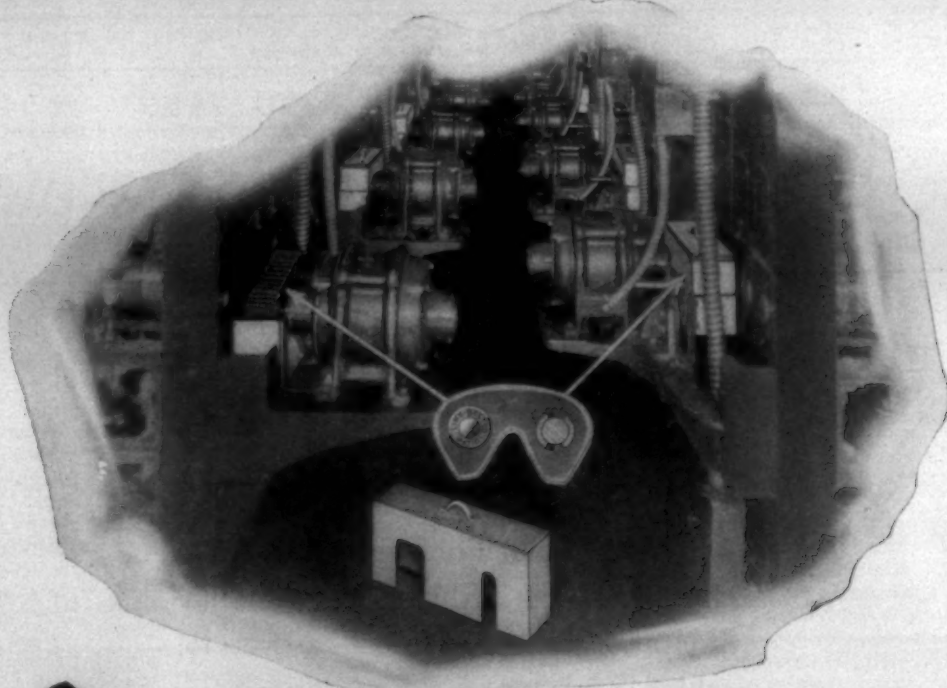
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Mills and Cotton Growers Should Cooperate

THE most casual examination of the American cotton industry reveals the fact that it is in a very unsatisfactory condition today in practically all departments. Producers in most sections are complaining that production per acre and prices per pound are too low to leave them a profit; dealers complaining that the character, length and grade of much of the crop are unsatisfactory; and mills are complaining that they cannot secure the grade and staple required without paying very high premiums and that manufacturing margins are non-existent or too low. It seems evident that every one interested in the industry should try to find out what is the matter with it and apply such remedies as suggest themselves. I hope that my long experience as cotton breeder, producer and dealer, supplemented by intimate relationships with a number of the best cotton mills of the South and East, has qualified me to make a few suggestions as to the improvement of the industry.

Without hesitation I will state that in my judgment our cotton industry has suffered badly from a lack of intelligent and friendly co-operation between the grower, dealer and mill. Though there have been numerous cases in which mill treasurers, cotton dealers and cotton growers have attempted to establish helpful contacts, such a course has been the exception rather than the rule.

Until comparatively recent years few efforts were made to improve the character, quality and length of the cotton plant, and even today when a considerable number of competent plant breeders are at work on the improvement of the crop, few farmers, cotton dealers or mill treasurers have an adequate idea of what the cotton breeder is doing, nor do they understand that this work could become a very great factor for the rehabilitation of the industry.

A great majority of the seed planted in the South today are a mixture of many types. Even where the farmer begins with a pure, recent-pedigreed strain of high yield and other desirable qualities, he does not usually appreciate the fact that natural variation and gin mixing will within a few years destroy purity and injure production. He needs to realize that he should have

Address of D. R. Coker before the Atlantic Cotton Association.

a regular system for maintaining the purity and high production of his seed just as he realizes that in animal industry the purity and character of the breed must be maintained by careful selection or the frequent removal of breeding stock from the best breeders.

It would be difficult to bring the great majority of the farmers to a realization of the importance of the production and maintenance of a high quality of cotton, if all buyers of cotton would see to it that the grower always receives the proper differential for length, grade and character. Full length cottons bring no more per pound than the same grades of shorter length and poorer character.

Right here we have the greatest handicap to the improvement of the cotton industry, and I am here today principally to impress upon each one of you the importance, nay the absolute necessity, for the universal introduction of a system of correct and fair buying in every primary market. This must be done not only for the good of the whole cotton trade, but to demonstrate that the local cotton dealer is a useful servant of the industry. There is grave doubt of this in the minds of many today and this accounts for the fact that the idea of co-operative marketing is gaining a strong foothold in the cotton industry, as it has in many other branches of agriculture.

It is perfectly legitimate for farmers to band themselves together for the sale of their products, and where such association can eliminate unfairness and secure better net prices for the farmers' products, they will and should continue to live and grow. Some features of the co-operative marketing associations now in operation are objected to by many of the farmers. But most of these will eventually become members unless they are convinced that those who purchase their cotton in the primary markets are alive to their interests and are paying them the highest permissible price for each length and grade. If they see us pay one man the same price for 1 1/4 inch that we pay another for 3/4 inch cotton, they are going to join the co-ops, and they should do so.

The unfair system of buying all cotton at one price without even sampling the bales was still in force last fall in some places, and, it affords an unanswerable argument for co-operative marketing.

There are cotton dealers all over the South who, on account of long training and experience in classing and handling cotton and knowledge of the requirements of the friendly relations with spinners, can and do handle cotton to just as good advantage as the best managed co-operatives. Such men have a decided advantage in being able to ship direct to mills with minimum charges for storage, handling, insurance and interest. They also afford the farmer the obvious advantages of immediate settlement in full.

If in addition to introducing fair and discriminating buying (and this means paying a low price for a poor bale just as it means paying a high price for a good bale) all local buyers would encourage farmers to improve the quality of their product by suggestions as to variety and seed sources, and would intelligently criticize the ginning and handling of the cotton as it comes in, they could speedily become indispensable in the machinery of cotton production marketing because of their expert assistance in maintaining a superior supply of raw materials for the

Of course many local buyers are agents for the large cotton houses and can only carry out instructions. Most of them can class cotton for grade but many cannot accurately discriminate between different lengths. A short course at the central office would go far toward giving them this information and a little daily practice with length types furnished by the government or by the home office would shortly give them all the training they need for practical street work.

The Farm Demonstration Bureau of this State, following the lead of similar movements in several States, has put on a 5-acre contest with varieties which under good conditions will make 1 inch or better staple. All such efforts should receive substantial support from all branches of the cotton trade for they hold out real hope for the improvement of the industry. One purpose of these contests is to

cheapen cotton production by showing the farmers that they can produce far greater quantities per acre than formerly. In Texas this past year the winner in such a contest produced over 16 bales on 5 acres and this stimulating example will probably result eventually in a considerable increase per acre yields in that and other states.

The other purpose of this contest is to improve the length and character of the crop and provide the types of cotton required by the mills. It is undoubtedly true that during the past few years the average quality of the South Carolina cotton crop has declined both in character and length. The crop year of 1924 was so wet in large parts of the state that the fibre was injured by the excessive rainfall. On the other hand in 1925 it was very seriously injured, especially in the Piedmont, by the most extraordinary drouth ever experienced. In addition to these climatic causes which are temporary and which prevail in other large sections of the belt, the average length and character of the crop of several eastern states has declined because of the introduction of small balled varieties of very short staple which were supposed to mature earlier and yield better under boll weevil conditions than the larger balled varieties formerly planted. It is a well known fact that the best staple sections from Alabama eastward have furnished little good bodied 1 1/4-16 inch cotton for several seasons. The appearance of fruitfulness and early maturity in some of these recently introduced cottons is largely illusory. I have learned from long experience in experimental work that the smaller the size of the boll of a variety, the more productive it seems to the eye, but that this appearance is frequently deceptive and that a big balled row of cotton standing beside a small balled row will frequently produce more, though it looks to be less productive. It is also true that a small balled cotton will open from five to ten days quicker after date of blooming than a big balled cotton, though the big balled will reach a state of immunity from boll weevil puncture a little quicker than the small balled. Date of blooming, therefore, is the true criterion of earliness in a variety and all experimenters agree that ac-

tual weighed tests under uniform conditions are necessary to determine relative yields of different varieties.

Not only was the yield not improved in many cases by the substitution of smaller balled early opening varieties, but the grade of the crop was actually lowered. It of course takes a picker about the same length of time to pick 100 small bolls as 100 large bolls, and, as the latter weighs from 25 to 50 per cent more than the former, it can readily be seen that the picking force on a plantation can gather a crop of big balled cotton much more quickly, and this of course means a higher average grade. I cannot pass on from this point without giving it special emphasis for its importance to the cotton industry is realized by very few. If big balled cottons were exclusively planted we should have far less low grade cotton to contend with than we have today.

Long before the arrival of the boll weevil in this section a few students of plant life were studying problems presented by his coming and were lending every effort to produce by the scientific methods of the plant breeder, cottons with qualities which would best withstand the ravages of the weevil. Even before the arrival of the weevil in South Carolina, some varieties and a high degree of weevil resistance had been bred here and introduced and tested in weevil infested sections further west. Immediately upon the arrival of the weevil intensive studies in weevil control and in production and cultural methods for weevil conditions were launched. The results of such experimental work by my own organization are best attested by the fact that we have not failed to produce on our farms approximately our pre-boll-weevil average yields in every year except one since the arrival of the pest. In 1922 our yield was only two-thirds of normal. The yield of Darlington County fell from 59,026 bales in 1920 (the last year before the weevils arrived) to 11,983 in 1922 and in no year since 1920 has the county made half as much as in that year. In addition to practically maintaining a normal yield during the past five years, we have received staple premiums running from 20 to 50 per cent for most of the cotton produced. Of course an intelligent handling of the boll weevil contributed much to these yields, but quick maturing, heavy fruiting varieties of staple lengths, produced by our plant breeders had much to do with results.

It may interest you to know that the most productive cottons in actual pounds of lint per acre that we have yet produced are descended from strains of Cleveland Big Boll and these new strains in addition to their high yield have a lint length of 1 1-16 inch to 1 1-8 inch.

I know it would be interesting to many of you if I could describe here in detail the methods by which we create these new and productive varieties. However time will not permit this and I will only say that we are doing scientific breeding work with 10 varieties of cotton, having this year 1,769 plant-to-rows

(each from the seed of a separate plant) and are increasing in half-acre blocks the seed of 73 of the best plant-to-rows grown last year. It requires four years of accurate testing to determine which strain in each variety is most productive and worthy of being finally increased for distribution.

So far as I am informed, no one in the world is doing anything like as much cotton breeding. We have each season many visitors from foreign countries and many thousands from the cotton states, and it would be a pleasure to have each member of this organization come to Hartsville and become thoroughly acquainted with work which is fundamentally necessary if we are to have the improvement in the cotton industry that all of us desire. Mid August to Mid September is the best time for such a visit.

While the character, length and yield of the cotton crop of the eastern belt has declined very seriously for reasons previously explained, it is a fact that these states are still producing considerable quantities of staple of the most desirable character and length and could produce vast quantities of every length from 1 inch to 1 3-8 inch that would compare favorably with any produced in other sections. Several experiences in my own organization this past year will tend to prove this.

Item A. During the past cotton season we contracted with a large and discriminating mill for the delivery of nearly 3000 bales of high grade staple cotton of 1 3-16 inch to 1 5-16 inch length. As the season advanced we became uneasy as to our ability to secure in Hartsville all of the longer lengths required for this order. We therefore bought several hundred bales of the best obtainable lengths and grades from Delta shippers, consigning this cotton to New England as a hedge against our sales. When the final delivery day approached, we found that we lacked just 35 bales of full 1 1-14 inch cotton of filling our contract with this mill for Hartsville cotton. Going carefully over the resamples of our New England stock of Delta cotton, we selected 35 bales which we tendered the mill with a full explanation of the circumstances. The receiver for the mill, who is known as one of the most discriminating cotton men in New England, turned down the entire lot, saying that the Valley cotton was irregular and of poorer character than the South Carolina cotton which we were due him. Some of you are doubtless thinking right now that I should tell you how many rejections we had from nearly 3000 bales of South Carolina cotton shipped this mill. It is a legitimate thought. Not one single bale of our shipments of Carolina cotton was rejected by this mill this season. For the season of 1924-25 our rejections were 13 bales by this mill, which was a rejection rate of less than one-half of one per cent.

Item B. As good a lot of Cleveland Big Boll cotton as we remember to have ever seen was raised by a customer of ours in Williamsburg County last year from a newly pedigreed strain and was sold for him by us as 460 points above the current

price for 7-8 inch cotton of the same grade.

Item C. We shipped 200 bales of full 1 1-16 inch to 1 1-18 inch cotton raised at Jessup and Ocilla (both of south Georgia) to a mill in North Carolina and received an excellent report on it from the treasurer. This cotton was of a new wilt resistant bred by us at Hartsville.

Item D. A large mill situated in territory between Mississippi and South Carolina and which buys from both states, recently made a test of two bales of different varieties from Hartsville and made a report indicating that both bales were of very superior quality and spinning value.

Item E. I have here with me ten samples from a pedigreed lot of full 1 1-16 inch Cleveland cotton raised at Hartsville and sold August 27th to a North Carolina mill at 27½ cents landed which was about 550 points on December New York. The grower received 26½ c or 425 points on.

Our Mississippi Valley friends may think from the above that I am making an argument for eastern as against Mississippi cotton. Such is not the case, for Mississippi growers can do and do raise a large quantity of as good cotton as is produced anywhere. My argument is for pure bred, uniform varieties, well handled and discriminatingly bought and shipped, and this argument applies to every section of the belt. My experience of about thirty years in the cotton business, however, leaves not the slightest doubt in my mind that the eastern cotton states can raise and, with the intelligent co-operation of the members of this organization and of our mills, will soon be raising a vast amount of as good cotton as is produced anywhere.

As long as the mills buy their cotton in the West without investigation of the present and possible local sources of supply and as long as there is no discriminating system of buying in primary cotton markets, and as long as mills and buyers have no adequate conception of the principles of seed selection which must be constantly utilized if we are to improve our crop and maintain a high standard of excellence, we are going to have the same distressing conditions as at present.

Much of the matter which I have discussed in this paper has been clear in my mind for at least eighteen years. Witness the following extracts from a paper delivered by your speaker before the South Carolina Cotton Manufacturers' Association in 1908:

"The fact that the careful breeder can within natural boundaries exaggerate and fix almost any plant characteristic, might be taken advantage of by the spinners requiring cottons different from those now generally grown here, to have bred for them in their own communities, varieties exactly suited to their purposes."

"The production and dissemination of the seed of better types of cotton, . . . would go on at a fair price without the spinners taking any interest in breeding, if all the lengths of well bred extra staples could be readily sold at a premium everywhere in the State. Under present conditions there is little use

for the breeder to offer seed of a 1 1-16 inch to 1 1-8 inch variety for he cannot assure the farmer that he will receive any more than his neighbor is getting for 3-4 inch to 7-8 inch staple.

"The interests of the mills using cottons of extra staple would seem to suggest that they keep in touch with progressive farmers and plant breeders, advising them of the types and lengths of staple wanted and affording them a market for their improved product."

"The real value of a pound of cotton is the sum of its spinning qualities and when the spinning value, and that alone, everywhere determines the price, inferior and undesirable varieties will quickly disappear and improved types will take their places."

Again in 1911 before the same association I used the following expressions:

"The matter of length and uniformity of cotton is of such paramount importance that it would seem that the whole system of buying short staple cotton should be changed and that the staple of every bale should be determined before sale and become a factor in its selling price."

"I want to suggest to the treasurers that they ought to test improved South Carolina bred cottons when offered them by responsible parties both for a patriotic and a selfish motive."

In 1921 I treated certain phases of this subject very fully in an address before the World Cotton Conference in Liverpool. I will not quote from this address but have copies here for the members of this association who would like to read it.

I want to make the suggestion to our Association that it do not adjourn without taking some effective steps for the improvement of the industry upon which we depend for our living. I suggest that our members be requested to commit themselves.

First: To promote the buying of pure-bred productive varieties of such lengths and characters as are required by our mills.

I would further suggest that this Association appoint a committee to make a thorough study of the production and quality. This committee should report annually its recommendations as to what the Association and its individual members can do for the improvement of the industry to the end that it may be made more profitable to ourselves and to our clients, the growers and the mills.

Until some such steps are taken, I predict that the quality and character of the crop will show little or no improvement and that the business of handling the crop will continue to drift out of our hands.

It is squarely up to us to demonstrate beyond doubt that we are necessary cogs in the machinery of cotton production, distribution and manufacture.

Let us not forget that the Southern farmer today is struggling against overwhelming handicaps and needs our help. And, finally let us not forget that real satisfaction is only gained through serving our fellow men.

The Story of Cotton

On account of its very interesting observations relative to the early history of cotton and cotton manufacturing, we are printing material copied from a small book, published about 1870, in London, Eng., by the Society for Promoting Christian Knowledge. As the book was not copyrighted and is now evidently out of print, we feel a liberty to give its contents to our readers, many of whom will be interested in the early history of the industry.—Editor.

(Continued from Last Week)

The chief product of this entire district is calico. Here it is spun, woven, bleached, and, if need be, printed with a coloured pattern. Gingham is also made here, and cotton-cambries for dresses both white and printed. Scotch cambric, an imitation of the fine linen cambric of France, comes from Glasgow, as do also book and mull muslins. Figured muslins are made at Paisley, formerly the seat of the silk gauze manufacture. When the use of the cotton was first understood in Great Britain, the artisans of that town, always an ingenious, painstaking people, transferred to the new material the beautiful patterns which they had been accustomed to give to silks, and thus gave their native town a fresh branch of industry, of which for some time she was the sole possessor. It is curious however to find that the delicate yarn from which these muslins are made is spun at Manchester. The manufacture of jaenot muslins, as well as checked and striped muslins, goes on at Bolton. Blue and white, checked and striped cotton for exportation to tropical countries, are made partly at Carlisle, partly in Lancashire. Dimities are woven at Warrington, and in the West Riding of Yorkshire; coloured handkerchiefs at Glasgow, Preston and Chorley.

Attempts have been made to remove these local manufactures to other places; but when a manufacture which depends on the skill of a body of workmen has become fixed and rooted in one spot, it is by no means easy to transplant it.

Factories for the spinning and weaving of cotton are of various dates, from those of Sir Richard Arkwright's erection to the spacious buildings of the present day, with their perfect arrangements for securing light, warmth, and ventilation. Good factories have for many years been so constructed as to be fire-proof; if possible, they are built in a populous village or town, yet near a river. To one of these modern factories we will in our next chapter pay a visit, and see what passes within its walls.

CHAPTER IX. The Cotton Factory.

Should any reader at a distance from the manufacturing districts inquire what a cotton-factory is like, we answer that it is an enormous building, of perhaps three hundred feet from end to end, having in some cases a plain flat frontage, in others a centre and two projecting wings. From a distance it is distinguished by the tall chimney, which rises at its side sometimes to the height of a hundred and fifty feet. The next thing which strikes the eye of a stranger is the magnitude of the windows with which the building is speckled, perhaps two or three hundred altogether. There will be from five to eight ranges of them placed with perfect regularity, each range of them giving light to one floor or storey of workshops. In these workshops the vegetable wool of other climates is to be spun into yarn, perhaps woven into cotton cloth. To them therefore are brought the large oblong bales of tightly compressed cotton, weighing on an average three hundred pounds each, which merchant vessels have conveyed to the port of Liverpool.

If cotton wool could be placed in the hands of our factory girls fresh from the plant, just after the seeds had been picked from out of it, the fleece would be found in a perfectly fit state for carding, but such is by no means the case. Let us transport ourselves for a moment to the plantations of Georgia or Carolina, and see what is done to it after it has been picked. When we described the process of gathering the downy tufts, we left them in the bags round the necks of the pickers. To continue their history from that point. Each picker is provided with a basket in which to empty the contents of his or her bag. In the old days of slave labour each slave was expected at the close of day, on pain of punishment, to give in a certain quantity of cotton; and the readers of Uncle Tom's Cabin will remember how Uncle Tom and Cussy helped the poor feeble mulatto woman, and all that Uncle Tom suffered in consequence of his kindness to her. Whether such scenes often took place we cannot tell, but it is cause for thankfulness to know that they cannot now take place at all. On the day after it is picked, the cotton is spread upon drying-floors, and exposed to the sun and air, and when dry, is passed through a sort of bolting machine called a whipper. Then the seeds have to be separated from it, a tedious and troublesome process, till, in the year 1793, Mr. Eli Whitney invented his saw-gin. Up to this time the shorter stapled cotton of America, like that of India, was cleaned by the vibrating stroke of a bow-string, the cord being raised by the hand and suddenly made to recoil upon the seed-cotton. The force given to the string caused it to separate the seeds, and open up the fleecy down. The choice long stapled cotton was cleaned with a little roller-gin, but it was slow work, and the labour of using it very hard.

So Mr. Whitney, man of much ingenuity and patience, determined to invent something that would meet the difficulty. He spent a whole winter in devising a machine, and at last he showed it to a few friends, and explained to them how, by the labour of one man, it could separate more cotton from the seed in one day than any method then in use could be done

(Continued on Page 40)



Not only in Textile Mills

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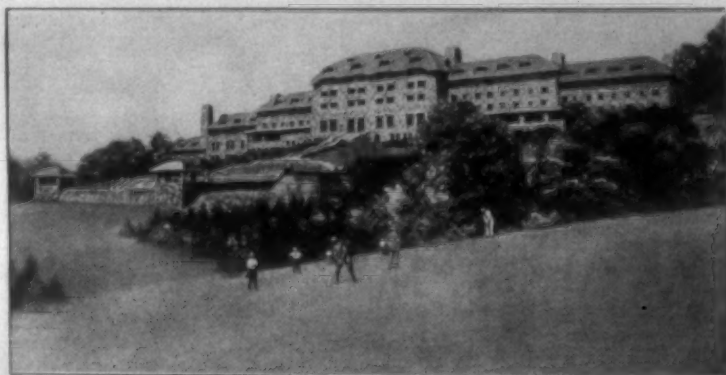
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We have pure air, common-sense, digestible food, quiet in the bedrooms at night, the finest organ in the world, and an atmosphere where refined people and busy business men with their families find great comfort and a good time.

Grove Park Inn

Asheville, N. C.

Theories of Dyeing

The large number of theories which now exist to explain the dyeing of a natural and artificial fibres is due to the differences in physical and chemical properties, which characterise such fibres. The feeble affinity which, say, cotton has for certain dyestuffs compared with the affinity shown by wool towards the same colouring matters is a typical example of the difference in behaviour of these fibres. When we also consider that even amongst the different forms of cellulose wide variation in dyeing property is displayed, the reason is at once apparent for the existence of the numerous theories proposed to explain the phenomena which takes place.

The principal theories which have held the field in face of most investigation may be grouped under the following headings:—

1. Chemical.
2. Mechanical.
3. Colloidal.
4. Electrical.

In addition, combinations of two or more of the above theories have been proposed.

1. Chemical Theory

This theory receives very strong support because of its satisfactory explanation of many phenomena occurring in the dyeing of animal fibres; additional evidence of its applicability, especially to wool and silk dyeing, is provided by a study of their chemical properties. Thus, both wool and silk are acidic in reaction, due to the presence of amino acid groups, but such acids are of an amphoteric nature, that is, they act as feeble bases under certain conditions. Consequently dyestuffs taken up from solution by these fibres show comparatively high stability towards the action of many reagents and lead us to infer that the combination of dyestuff and fibre is a true chemical compound.

The acid nature of wool is readily shown by extracting it with barium hydroxide, when on acidifying an acid, lanugenic acid is obtained, which reacts with dyestuffs to give coloured lakes of definite composition. By treating silk under more severe conditions sericin acid is obtained, resembling langanic acid in the ease with which it unites with dyestuffs. Definite evidence, much of which is due to the untiring researches of the late Prof. Knecht, exists to prove the chemical nature of wool dyeing. When wool is treated with a basic dye (which may be regarded as a combination of a colourless base and an acid) the wool takes up the basic constituent, leaving the acid part of the dyestuff to combine with part of the nitrogenous component of the wool thus forming an ammonium salt. The basic dyestuff need not necessarily be present in its quinonoid form, however, for wool will combine with colourless rosaniline base to give dyed wool. We must infer from this that salt formation between the acidic wool and the dye base has resulted. Still more positive proof of chemical combination

is supplied by the fact that when wool is dyed with dyestuffs belonging to the same homologous series, that is, a series in which each number differs from the preceding number by the same radical, as, for example, by a CH₂ group, then, in such a case, the dyestuffs are taken up in amounts proportional to their molecular weights.

The behaviour of wool towards the acid colouring matters is yet another instance of chemical action, for the wool exhibits acidic properties, combining with the acid colour (generally the sodium salt of a sulphonic acid). The addition of sulphuric acid to the dyebath in the application of these dyes may be regarded as a mordanting one, the acid increasing the acidity of the wool. This view is supported by the fact that wool which has previously been boiled with sulphuric acid can be dyed direct with acid colours, without the addition of sulphuric acid to the dyebath.

When applied to cellulose dyeing it must be admitted that the theory of chemical combination hangs on very slender evidence, for the affinity of, say, cotton, for most dyestuffs is only very feeble compared with that of animal fibres. However, the reactions which regenerated and derived celluloses undergo, have been given as evidence in support of the chemical theory as applied to cotton dyeing. Thus, the considerable affinity of some direct dyestuffs is completely destroyed on increasing the acidity of the cellulose by fully nitrating or acetylating it; the derivatives thus formed, however, have an increased affinity for basic coloring matters, showing that the constitution of the molecule of the fibre has a determining influence on its dyeing property.

2. Mechanical Theory

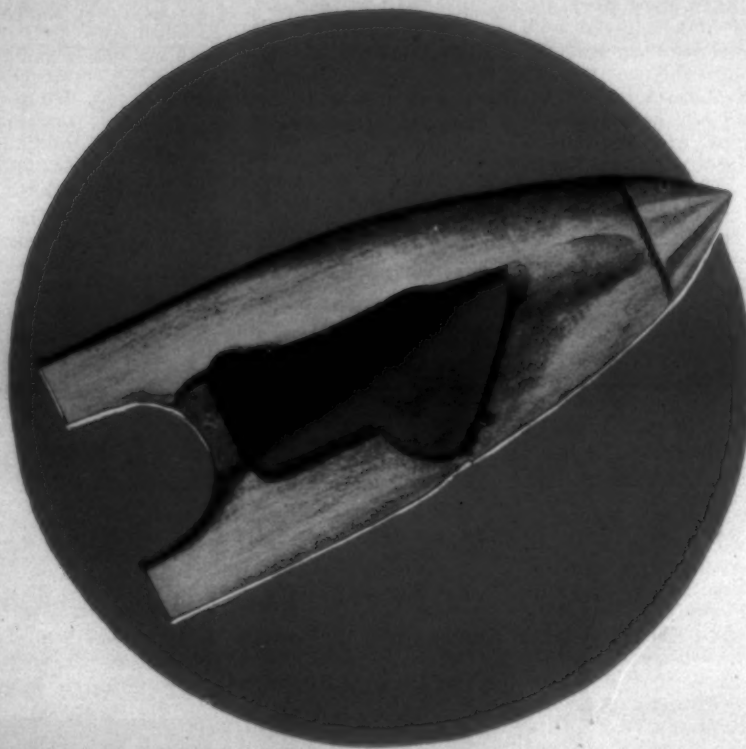
Two distinct theories of dyeing, which base their explanations on mechanical action alone are the theories of solid solution and of adsorption. The former is based on a well-known physical law which states that if a substance is added to a mixture of two non-miscible solvents, it will divide itself between the two solvents in the ratio of its solubility in each. Consequently, the addition of a good solvent for dyestuffs to a solution of a dye will result in the removal of a considerable quantity of dyestuff. This theory, which was first proposed and elaborated by O. N. Witt, holds that all fibres are potential solvents and are capable of dissolving or extracting dyestuffs from their solutions in amounts demanded by the above law. The experimental proof given to support this view is that in many dyeing operations a constant ratio is established between the concentration of dyestuff in fibre and in solvent; this fact deserves inclusion in any comprehensive theory of dyeing.

The adsorption theory has been applied to explain phenomena because of the supposed similarity which exists between the manner in which fibres take up dyestuffs and
(Continued on Page 43)

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Death of Samuel F. Patterson

SAMUEL F. PATTERSON of Roanoke Rapids, N. C., died a 5 a. m., May 28th at his home at Roanoke Rapids, N. C. Mr. Patterson was recently elected president of the American Cotton Manufacturers Association and was just completing a term as president of the Cotton Manufacturers Association of North Carolina.

On account of an attack of kidney trouble he was forced to leave Atlanta before his election as president of the Cotton Manufacturers Association and upon his return to Roanoke Rapids, N. C., fell into a condition of coma and slept as his illness gradually weakened him until he passed away.

Samuel F. Patterson was born in Salem, N. C., on October 26, 1867. He was a grandson of the late General Samuel Finley Patterson, of Happy Valley, Caldwell County, and the late Francis Fries, of Salem. He is survived by his wife, who before marriage was Miss Nancy Pearson, three children, Francis Finley Patterson, of Roanoke Rapids; Mrs. Bryce Beard, of Salisbury; and Miss Mary Blythe Patterson of Roanoke Rapids, and five brothers, John L. Patterson of Richmond, Va.; Rufus L. Patterson of New York; Dr. A. H. Patterson of the University of North Carolina, Chapel Hill; Edmund V. Patterson of New York and Frank Patterson of Baltimore.

Mr. Patterson was educated at Salem Boys' School and at Bingham School, Orange County, N. C., where he was a classmate of the late W. C. Ruffin and J. D. Hammett. From school he went to work for the F. and H. Fries Mills in Salem. From Salem he went to Concord where, at the age of 19, he took charge of three mills for the Odell Manufacturing Company holding this position with great credit to himself until he was 23 years old. At this time with his uncle Colonel F. H. Fries, and the late William H. Kerr, he purchased the Thistle Mills, a silk mill, at Ilchester, Md.

When he first went to Roanoke Rapids to manage the Roanoke Mills, started by a power company, there was little else there but a swamp infested with malaria and other diseases. Under the direction of Samuel F. Patterson much sanitary engineering was done at this place and at present one of the finest schools in North Carolina is located at that place and a model community, the like of which is not to be found in the State, has not been developed.

In 1900 Mr. Patterson assisted in the organization of the Rosemary Manufacturing Company and was treasurer of that Company until 1920 when he became president and manager. In 1908 he organized the Patterson Mills Company and was treasurer and general manager of that company until 1912, when he disposed of his interest.

Under his management the Roanoke Mills Company grew from a small beginning to 55,000 spindles

and 1742 looms with a capital of more than \$4,000,000.

The Rosemary Manufacturing Company became the largest cotton damask mill in the world with 47,552 spindles and 1272 looms and a capitalization of \$5,000,000.

After a funeral service at the Methodist church at Roanoke Rapids on Saturday the body of Mr. Patterson was carried to his mother's home at Winston-Salem, N. C., where it rested Saturday night.

A service was conducted there at 10 a. m. Saturday morning by Bishop Edward Ronthaler and Dr. J. K. Pfohl, pastor of the local Moravian church. Following the service held at the home, the body was borne to the home cemetery, and there, with the usual rites of the Moravian church, conducted by Bishop Ronthaler and Dr. J. Kenneth P. Fohl, the remains were placed to their last repose.

In spite of the fact that one service had already been held in Roanoke Rapids, the scene of the greatest activity of Samuel F. Patterson, a large crowd attended the service

in Winston-Salem. People came from points at considerable distance and there was a delegation of about twenty-five from the home town of Mr. Patterson. Flowers were sent from the country's greatest textile organizations. These floral tributes included a handsome design from the State association of cotton manufacturers of Georgia.

The active pall bearers were H. F. Shaffner, W. F. Shaffner, F. F. Bahnson, Agnew H. Bahnson, Dr. Phin Horton, Henry R. Starbuck, Dr. T. W. M. Long and W. I. Brooks.

The honorary pall bearers, who were present, were Governor Angus W. McLean, E. C. Brooks, of Raleigh; Winston B. Adams, of Charlotte; O. Max Gardner, of Shelby; Bernard Cone, of Greensboro; E. C. Dwelle, of Charlotte; Hunter Marshall, Jr., of Charlotte; Dr. S. B. Pierce, of Weldon; Arthur M. Dixon, of Gastonia; T. Ashby Blythe, of Philadelphia; W. Lunsford Long, of Roanoke Rapids; Thomas C. Wilson, of Philadelphia; John McGuire, of Philadelphia; Charles G. Hill, of Winston-Salem; William T. Council, of Roanoke Rapids; David Clark, of

Charlotte; S. B. Alexander, of Charlotte.

No death in Southern textile circles in recent years has caused more general regret than the passing of Samuel F. Patterson.

Expressions from mill executives here reflect the great esteem in which Mr. Patterson was held.

"In the death of Mr. Patterson the Southern textile industry has lost one of its commanding figures," Winston D. Adams, secretary and treasurer of the American Cotton Manufacturers' Association, said.

"No man in North Carolina has done more for the development of the industry in the State, and the range of his influence and service had long since transcended States lines and embraced the South as well.

"That he was president of the American Cotton Manufacturers' Association, and likewise president of the Cotton Manufacturers' Association of North Carolina, will give some slight indication of the degree of his standing at home and abroad.

"The model little city of Roanoke Rapids, with its great mills, its splendid schools, fine churches, beautiful homes and contented people, is a lasting tribute to the personality and achievements of its benefactor; for to his cordial interest, untiring efforts, sympathetic support and financial backing, the development of the city was due.

"His people knew him and loved him, and never did he falter in their trust, although weighted down by heavy responsibilities and charged with the direction of great enterprises, among the latter being the largest damask mills in America.

"To his associates in the industry he often referred to his community, its schools, churches and people, with a pride that knew no bounds. For two decades he served as chairman of the legislative committee of the Cotton Manufacturers' Association of North Carolina, and much of the credit for the broad visioned and liberal legislative policies of the State affecting industry, was due to his wise counsel and deep interest.

"No one ever doubted where Mr. Patterson stood on any public question, and he was always ready to express his views and back his judgment to the limit. Fair and open minded, he was willing to accord to his opponents the same rights that he reserved for himself, which fact accounts for his ability to occupy a position of primacy in responsibility for more than a quarter of a century.

Mr. Patterson took the keenest interest in the development and growth of the Southern textile industry, and anything that would contribute to its upbuilding always commanded his hearty allegiance.

"In the American Cotton Manufacturers' Association's affairs he always took a prominent part, served for years as an active member on its board of governors, on its legislative and other committees, and as its

(Continued on Page 36)



Samuel F. Patterson.



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Fundamental Measurements in a Cotton Mill

Before entering into a rather general discussion of fundamental measurements in a cotton mill, the author would like to state frankly that the principles that he is about to discuss are not new.

Countless efforts to systematize industry were made before any of those present were born. Within recent years men like Taylor, Gantt, and many others have made very valuable contributions in applying systematic methods in certain branches of manufacture. Until very recently no effort has been made to apply any of these new principles to cotton manufacturing, as the claim has been made that the work is so largely machine operation that the labor of the man running the machine could not be altered materially. During the last few years, however, this conception has been changed and considerable progress has been made.

The author would repeat that he does not claim to have originated any considerable part of these modern methods. It is his good fortune now, however, and it has been for the last few years, to have been associated with men who, he believes, have made valuable contributions.

Outwardly, nature is a tremendous mass of variables. Everything that lives and grows, and even inanimate objects that cause them to vary one from the other. It is the duty of science to segregate varia-

Address by Sidney S. Paine before Textile Division, American Society of Mechanical Engineers.

bles, and, from the measurements of these individual variables, construct fundamental laws and basic truths.

In a cotton mill there are many variables, the largest of which are the raw cotton, machines, machine organizations and settings, atmospheric conditions, and labor.

Probably the greatest single curse in cotton manufacture is the policy of basing operations too much upon individual opinions instead of upon facts. The results are accepted as basic, with relatively no effort made to find out "the reason why." A few instances found in mills that are considered to be very well run illustrate this point.

A comparison of twist multiples in several mills spinning print-cloth numbers from 1-in. cotton was made. Twist multiples on the slubbers varied from 1.05 to 1.56; on the intermediates, from 1.18 to 1.65; on the fine frames, from 1.20 to 1.93; on the warp yarn, from 4.65 to 5.41; and on the filling yarn, from 3.65 to 4.85. These mills were all using cotton of approximately the same grade, staple and character. Each one wanted to get as high a production as possible.

In all cases of the higher twist multiples, it was said that that amount of twist was necessary. This apparent fact was based on the opin-

ion of some overseer or second hand who said that, if less twist were put in, the work would run poorly. As a matter of fact, in most cases the extra twist was necessary, but it was needed to cover up sins of condition or operation that should have been eliminated.

In some cases this twist was necessary by the way the cotton was mixed. The cotton would be mixed one or two bales at a time, with all the waste run in at a certain time during the day and none at other times. Again, any machine difficulties previous to the operation under consideration would result in poor running work, and the answer would be, "Put in more twist." For instance, excessive blows per inch on the pickers, dull beaters, poor card clothing with faulty settings, excessive tensions, sprung rolls, worn necks, poor settings, and many other mechanical faults on the drawing frames or speeders would cause the work to run poorly, and the answer would be, "Put in more twist." In other words, in the mills mentioned above some processes were given from one-third to one-half less production than the same processes were in other mills simply because no effort was made to measure causes of the difficulties.

Consider another instance. One

mill making a specialized fabric was operating automatic looms at something less than 70 per cent efficiency. Upon being questioned, the management said that it was impossible to run this class of fabric at a higher efficiency. An effort was made to measure the reason why. Besides the usual conditions causing uneven and weak yarns, the following unusual and big causes were found. On seven spinning frames there were mixed whorls varying from $\frac{1}{4}$ in. to $\frac{3}{4}$ in. on the same frame. On the two shifts these frames doffed five times a day. In other words, there were 35 doffs of warp yarn, and each contained many bobbins of twist that were virtually filling twist. This yarn was put into the looms and woven under a comparatively, high warp tension with the result that these ends broke continually.

A further investigation revealed the fact that 41 per cent of the end breakage was due to knots. It was found that no one in the mill knew that the blades or bill springs could be sharpened. The excessively dull blades resulted in long, loose, and shaggy knots. Probably more unbelievable than either of the other faults was the fact that the warp beams on the same styles, with the same number of ends, the same yardage, and the same counts of yarn varied 18 per cent in weight. The mill, instead of attempting to

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find out and measure the causes of the difficulties, had been satisfied to accept the opinion of the superintendent that everything was as it should be. The only wonder is that the mill got as much production as it did.

The foregoing two instances illustrate rather graphically what happen not in our poorly run mills, but in too many of the so-called well-run mills.

As a matter of fact, we have at our disposal today enough data to measure within a reasonable degree of accuracy the several variables. Having measured these variables, we can predict probable results that will result from the combination of variables. The author does not propose to go into a stereotyped discussion of the "do's" and "don'ts" of manufacturing, but would like to mention some of the familiar things from the standpoint of fundamental measurements.

In regard to the raw cotton that we put into the mills, we are accustomed to say that, if we have a strong-bodied and even-running cotton, mixed so many bales at a time, using certain kinds of waste, we are prepared to manufacture satisfactorily a certain product. As a matter of fact, many organizations are measuring the cotton with more nearly a scientific exactness than was done a few years ago. Frequency curves are formed by the measurement of several hundred fibres from a given sample, showing the percentage of fibres of each different length. Fibre strengths

have been measured for a long time. Innumerable tests have been run in laboratories and in mills showing with given conditions of speed, etc., just exactly what can be gotten out of cotton of certain descriptions.

By the segregation of variables, the possibilities of a given cotton from the standpoint of speeds, twists, drafts, and strength have been standardized within reasonable accuracy, assuming that machine conditions are correct. Furthermore the admission of waste to the cotton mix and the effect of the different machines or processes on the cotton have been measured definitely and accurately by the elementary measurements of cotton already mentioned. Although much improvement can be made in our basic measurements of cotton, the author thinks it is conservative to say that we can measure cotton accurately enough to be able to predict productions and strength, assuming corrected machine condition or laboratory conditions.

We find right here the bone of contention of many mill men. It is said that certain results can be obtained under laboratory conditions that cannot be obtained in actual so called practical production. This is because the average cotton mill has comparatively no control over its machine conditions, if conditions existing are any criterion. In other words, the difficulty is not that definite cotton will not give definite results, but that the machines are poorly fixed or are allowed to get into poor condition.

In the mechanical industries we get our tensile strength, measurements of flexibility, torsion, and all other measurements from the laboratory and accept these in actual practice. The author sees no reason why manufacturing operations cannot be controlled in a cotton mill if enough attention is given to machine operation so that the mills will more nearly approach standardized laboratory conditions. Therefore, the first point of measurement that he wishes to emphasize is that, if our machine conditions are standardized and controlled, as we all like to believe is the case now in our mills, definite cotton will give definite results, both of which can be measured.

Standards Set on Fundamentals.

Continual mention has been made of machine conditions and operations. Machine conditions can be recorded and described accurately, and the effects of the conditions can be measured definitely in terms of strength, machine stoppage or end breakage, machine per operative, or—in other words—cost.

There are two parts to the measurement of machine condition, operation, and organization. In the first place, there is the laying out of standards. We are vitally interested in the dollar and want to get the highest return from our investments. On machine standards there must be a balance of the things which control the cost.

As an illustration, consider the spinning frame. We know that we can take 4-inch cotton and spin 28s

warp yarn in a great many ways. We can measure the production, strength of yarn, and ends broken with many different spindle speeds, twists, and drafts. We know that if the cotton is what is usually considered even and strong cotton, we can use a spindle speed of 9200 on a 1½ inch ring with a 4.65 twist multiple, a draft of 10, and other known conditions, and get a yarn approximately 60 pound breaking strength, 1.2 pounds per spindle for 48 hours, and on the frames have about 40 ends broken down per 1000 spindles per hour. We know and can measure the effect of altering any of the variables on production or end breakage. We know, for instance, that if we increase the spindle speed to 10,000 r.p.m., leaving the other variables as before, the end breakage will probably be increased to 65 ends per 1000 spindles per hour. We know that we can measure the effect of speed, draft, twist, or any other variable on the end breakage, strength of yarn, or production. The task of setting standards is to measure these fundamental variables and so adjust them as to make the kind of yarn we want at the lowest cost.

Having measured these things, the next step is to determine the lowest cost. It is the author's opinion, to continue this illustration, that to have a spinning frame operating so that there will be 40 ends broken down per 1000 spindles per hour is the most economical point. Tests have been run at which the end

(Continued on Page 38)

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Manufacture of Fancy Goods

Extreme in Fancy Designs Attained With Jacquard Looms

This is the seventh in a series of articles on fancy weaving. The next will appear in an early issue.

—Editor.

The extreme in fancy designs in cotton goods, or any of the textiles, is attained by weaving them on the jacquard loom or a loom to which the jacquard shedding mechanism has been attached. The principle of the jacquard machine is different from that of the cam loom, or even the fancy loom in which the designs are produced with harnesses operated with jacks. The shedding mechanism of the jacquard machine consists of two distinct parts, the first of which involves that part which operates the cards in which the pattern is stamped; and also corresponding needles and hooks; and second, the harness equipment which repeats the effect with the wires. Instead of each harness controlling a number of threads drawn in on that harness, as in the ordinary loom, separate harness control is provided for in the jacquard weave. That is, a separate heddle carries each individual thread so that thread can be raised or lowered

without regard to the movements of any other thread. Take for example, a 600 jacquard machine. This type of jacquard will admit the weaving of fancy patterns containing this number of the threads in the repeat. A mill intending to produce elaborately figured table cloths, damasks, curtains or intricately designed dress goods would use a machine of this capacity or even greater, for it is not unusual to see complicated and alluring colored productions made up with one thousand or more threads before there is a repetition of the pattern.

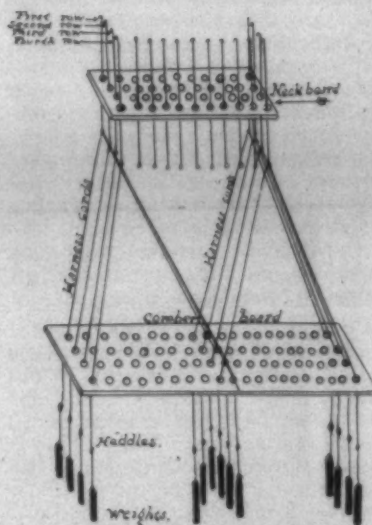
The demands of the fair sex for make it necessary for some fancy gorgeousness and richness in design goods mills to operate a few jacquards in connection with their regular looms. These looms are run on the most complicated patterns, although they can be employed on plain work if desired, as the principle of shedding is adaptable to all descriptions of textures. They are useful for experimental weaving; and fancy goods mills that do not have such weaving machinery for general purposes, often have a single jacquard installed for experimental purposes. Contemplated designs are woven in varied colored fields and certain promising ones selected for manufacture. Random patterns have an important position

in any fancy goods designing room and not infrequently these prove to be better sellers than designs which have been tediously worked out according to the fixed laws of color harmony and weave selection. In the ordinary loom, any essential changes in patterns usually require

a remounting with a different drawing in of the threads and also changes in the number of harness and pattern chains. With the jacquard attachment the most elaborate alterations can be made with the changing of the pattern cards only.

Ornamentation of the radiance often required in modern fabrics is possible on the jacquard machine by drawing three, four or five ends of the warp through each mail in the harness and then separating them in the heddles. In this case the heddles must be provided with mails of ample length to permit the formation of the shed when the harness is at a level. The jacquard elevates these groups of threads and retains them stationary until the ground is woven, thus producing figured effects by floating certain threads on the ground.

The shedding mechanism of the jacquard attachment is shown in the drawing. The upright wires at the top are bent in the form of a hook at the terminals and these are made to engage with the griff bars which have an up and down motion with each revolution of the loom. Such hooks as are caused to engage with the griff bars are raised to form



A jacquard machine admits the production of fancy figured designs containing as many as 1000 threads in each pattern.

(Continued on Page 37)

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Texas Textiles Report Increase

Dallas, Texas.—The textile industry in Texas for the first quarter of 1926 showed increased activity, with resultant gains indicative of continued expansion, based on a comparative analysis for the corresponding period in 1925. This was the statement made by Burt C. Blanton, consulting industrial engineer of Dallas, in a report on the industry recently completed.

"Spinning spindles in place in Texas mills on January 31, 1925, aggregated 226,676, as compared with 239,340 on the corresponding date in 1926, which is equivalent to an increase for January, 1925, of about 5.5 per cent," Mr. Blanton said. "Of the total number of spinning spindles in place in January, 1925, approximately 93.9 per cent were active during the month, as compared with 94.2 per cent in January, 1926.

"The average number of active spindle hours per spindles in place for the first quarter of 1925 approximated 252 spindle hours, as compared to 296 spindle hours, as the first quarter of 1926, which represents an increase of about 17.6 per cent.

"Texas ranked third among the textile manufacturing States of the Union in the average number of active spindle hours per spindle in place for the first quarter of 1926, as compared to a rank of sixth for the corresponding period in 1925.

"The net increase in the aggregate number of active spindle hours

in Texas mills for the first quarter of 1926 over the corresponding period in 1925, approximated 21.5 cent."

In conclusion Mr. Blanton said: "Development and expansion of the textile industry throughout the State is continuing on a consistent basis due to the growing realization of Texas' citizens that this State has a complement of requisite constituents for the successful operation of cotton mills, the major elements governing their location being power, labor raw materials and transportation facilities; consequently Texas is destined, within the period of the next two decades, to become the leading cotton manufacturing State in the Southwest.

Predict 14,000,000 Bale Consumption of Cotton

World consumption of 14,000,000 bales of cotton next season at around the present spot level is forecast by the Brookmire Economic Service Inc.

They place the world supply for 1925-1926 at 19,400,000 bales American cotton—a figure based on the crop of over 16,000,000 bales and a carry-over of 3,300,000 bales. The demand was reported to be favorable—there being good current consumer demand for cotton goods but hesitant buying in the trade owing to the high prices of cotton at the start of the season and the decline in prices as production estimates increased.

Present consumption is rated at

about 24,000,000 bales while world production for the current cotton year, August, 1925, to July, 1926, is estimated at 27,800,000. The difference between these two figures added to the carry-over from last season, will mean a world carry-over of 10,000,000 bales—the heaviest since 1921.

"Average yields for the whole country during the next few years we believe, will approximate the average of the past 10 of 12 years. Acreage appears likely to remain at a fairly high level—say 45,000,000 acres. Such an increase with the 10-year average yield of 153 pounds would produce about 14,500,000 bales and with the 12-year average yield of 160 pounds, 15,000,000."

Southern Spinners' Bulletin

The weekly bulletin of the Southern Yarn Spinners Association says:

Trading in yarn remains apathetic. Only small sales of spots for prompt delivery are reported. The reported market quotations are below cost of production. Spinners' prices are at an advance over reported quotations. Buyers are hesitant to purchase, believing that they will be able to secure their supplies when needed at reduced figures. It is understood that consumers of cotton yarns are now operating on a much reduced schedule, and are not apparently interested in further purchases at present prices.

The only solution of the situation is a reduced output of yarns. This can only be effected by curtailment.

We believe that a radical curtailment instituted promptly followed up by reduced operating time will materially relieve the situation, and improve conditions.

The manufacturers of South Carolina have appreciated the situation, and have already instituted a 25 per cent state wide curtailment of operations in cotton mills.

We believe that the plan formulated at the meeting of American Cotton Manufacturers Association, when operative will be of inestimable benefit to the Southern manufacturer, particularly so as they purpose securing and publishing statistics of production, demand and accumulation of stocks. With actual concrete facts before them, manufacturers can regulate their operations intelligently.

A new system of distribution of product is one of the trying needs at the present time, as since the inauguration of hand-to-mouth purchases, the manufacturer has been forced to assume the functions previously performed by distributor, jobber and retailer.

Increased Rayon Production

Nashville, Tenn.—Output of DuPont Rayon Company at its mills at Old Hickory Powder Plant has reached 800,000 pounds monthly, according to statement of Howard J. White, superintendent. Two mills are now practically complete, and about 4,000 operatives are used. Operations are now getting close to capacity.

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Plans for Southern Textile Association Meeting

The important question of standards for textile products and processes will receive considerable attention at the annual meeting of the Southern Textile Association, to be held at Tybee Beach Hotel, Tybee Ga., on Friday and Saturday, July 16 and 17. This announcement is made by F. Gordon Cobb, secretary-treasurer of the association, who is vice-president and general manager of the Lancaster Cotton Mills, Lancaster, S. C.

This association is composed of the operating executives, managers, superintendents, department heads, etc., of the Southern cotton yarn and cloth mills. For some time, Mr. Cobb and other officers have been working with established standards and testing societies with a view to establishing standards for cotton goods and practices within the mill.

The textile industry, Mr. Cobb points out, is practically the only major industry in the country which does not at present have definite general standards by which their products can be gauged. By enlisting the cooperation and interest of the practical group of men attending the Tybee meeting, considerable progress toward the desired end of setting up definite standards is anticipated. This subject will form the keynote of the meeting, which will

attract men from all over the South.

Robert F. Bowe, assistant vice-president of the Hunter Manufacturing & Commission Co., New York, will, it is understood address the convention on Friday, and it is probable that his remarks will touch upon this pertinent subject.

Cloth Classifications.

Another feature of the meeting having a bearing upon standardization will be the reports of the various sub-committees into which the association is divided. The weaving division, headed by L. L. Brown, general superintendent, Clifton, (S. C.) Manufacturing Company, hopes as a result of a preliminary sectional meeting in Anderson, S. C., on June 18, to present at the Tybee meeting a score or more samples of different styles of cloth, particularly print cloths, on which the majority opinion of the division members has been secured as to just which represents "first-class," "second-class," etc., allowed in each classification, the kind of defects, etc. With this as a basis, the association plans ultimately to set up certain tolerances as allowable to different styles of goods as a general standard for different classifications.

J. O. Corn, superintendent, Pacific Mills, Columbia, S. C., will report as

chairman of the carding division, presenting the majority opinion of the members of that section as to various practices in connection with the processes in the preparatory or carding department of the mill operations.

The report of the spinning committee will be made by Carl R. Harris chairman, who is assistant superintendent of the Inman (S.-C.) Cotton Mills.

President's Address.

Oscar D. Grimes, vice-president and general manager, Athens (Ga.) Manufacturing Company, is president of the Southern Textile Association, and will deliver the annual address on Saturday morning.

Other features already arranged include the report of the secretary on his activities during the year; a discussion on experiences with the long-draft systems of spinning; descriptions of new textile inventions and devices by mill men, and a pleasing entertainment program between sessions.

Election of officers for the coming year will be held at the Saturday session. In addition to the officers named, W. H. Gibson, Jr., manager, Cascade Mills, Mooresville, N. C., is vice-president, and the board of governors consists of the following:

L. R. Gilbert, chairman, Raleigh, N. C.; Frank Petrea, Columbus, Ga.; W. W. Arnold, Jr., Knoxville, Tenn.; Carl R. Harris, Inman, S. C.; J. O. Edwards, Monroe, N. C.; G. A. Franklin, Augusta; J. W. Hames, Atlanta, Ga.; R. W. Jennings, West Point, Ga.; L. L. Brown, Clifton, S. C.; J. W. Jenkins, Rockingham, N. C.; S. L. McCracken, Rockingham, N. C.; J. O. Corn, Columbia, S. C., and E. A. Franks, Spartanburg, S. C.

Greenville Delegates Will Wear Smocks at National Convention.

Greenville, S. C.—In the effort to encourage the use of cotton, Greenville delegates to the national convention of the Junior Chamber of Commerce in Jacksonville, early in June, may wear smocks.

This city will send 35 young men to the Jacksonville convention, and present plans calls for them to be dressed in smocks of bright colors. On the back of each smock will be painted the words, "Greenville, S. C., Textile Center of the South," if the present plans are carried out.

Smocks have been worn in various parts of the country by women, but the young men from this city propose to go the women one better and to "outlook the women" in these popular garments.

Are You Making Good Warps?

The STEIN-HALL Research Staff has spent years in developing the best starches and binders for warp sizing. Leading mills are availing themselves of the opportunity to profit by this experience. You are invited to share with them the improved results to be had through the use of STEIN-HALL starches. We solicit your inquiries.

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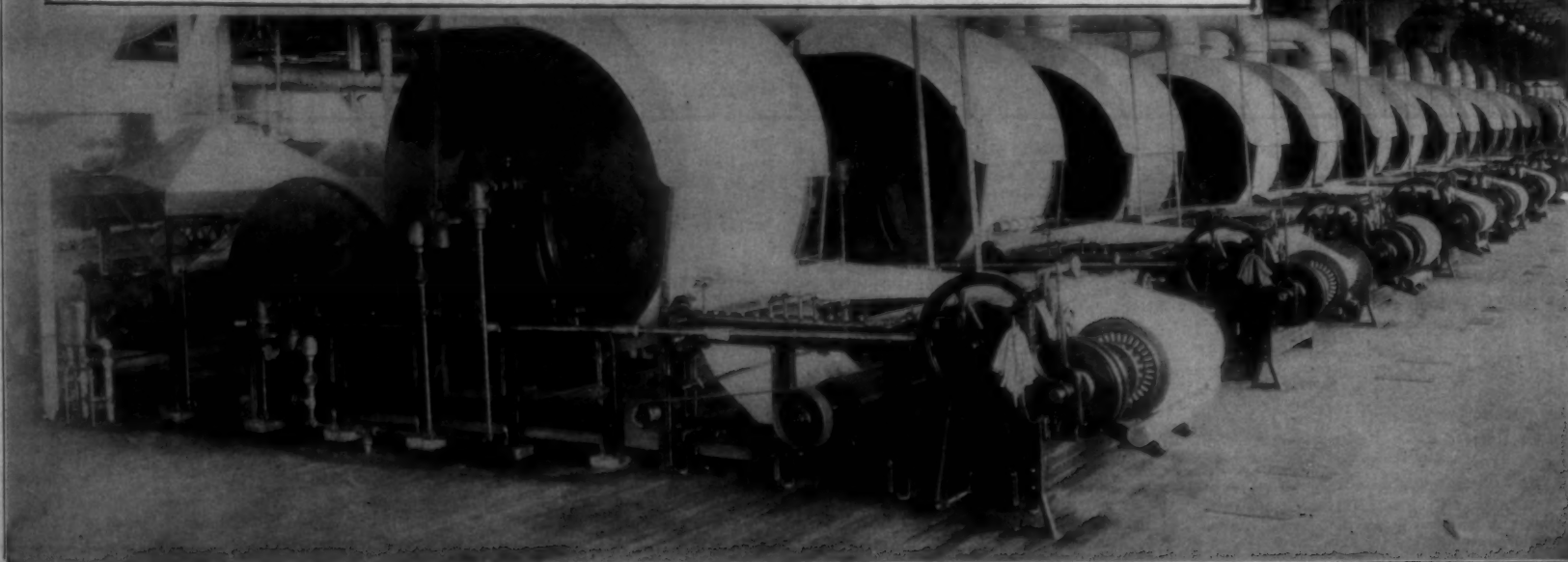
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Practical Discussions

By
Practical Men

Is Even Twist Possible on Single Yarns?

Editor:

Why is twist in single yarns uneven? Is it not possible to have even twist in single yarns?

Twist.

Hard Twisted Filling.

Editor:

How hard can filling yarns be twisted and yet be useful to weave? South.

How to Find the Average Number of Yarn Spun.

Editor:

I am spinning a large range of yarn numbers and am anxious to learn the best rule for ascertaining the average yarn number that I spin from week to week.

Young Spinner.

Wound in Opposite Directions.

Editor:

On nappers, why is the clothing wound in one direction on the pile rolls and wound in the opposite direction on the counter pile rolls? Napper.

Steam at the Nappers.

Editor:

Is it necessary to have steam at the nappers in the steam drum provided with these machines, and why? S. C.

To Neutralize Hot Goods.

Editor:

I dry a great deal of goods on steam dry cans. And it is also necessary for me to hold a large amount of these goods in stock, but oftentimes some of these goods sweat and mildew. What can I do to remedy this? Designer.

Answer to Texas.

Editor:

In answer to Texas about which is best to do when his yarn is one number too light, to change the draft or the twist. It will be better by all means to make the yarn one tooth heavier on the draft. This is the best way, because it brings your yarn nearer to the number and keeps up your production. If you put in a tooth of twist you will lose production and your yarn will still be a bit too light. Yankee.

Answer to Napper

Editor:

In answer to Napper regarding how to tell which are the pile and which are the counter pile rolls. This can be ascertained in this way: The pile rolls have the wires pointing in the same direction as the cylinder turns, or pointing away from you when facing the machine on the feed-in side. The counter pile rolls face downward or away from the direction of the rotating cylinder.

Napper Grinder.

Weaving Corduroy.

Editor:

I would like space in your Discussion Department to ask some experienced corduroy weaver how to draw in the harness and the reed, one repeat and how is the harness arranged in weaving? I mean how many harnesses up and how many down and which ones are they in order until the full repeat has worked in order.

I would like to know the number of teeth the gears have and the manufacturing number of the side cams and how to build them to make corduroy. I am using a 40-inch Model H Draper automatic loom with side cams. Corduroy.

Regarding Standardization.

Editor:

I was very much interested in the recent article on Standardization, written by Seeker. I hardly think the things he mentions will come about in your time or mine. I have been answering the call of the whistle and the bell for 40 years, both North and South and if I continue as well physically as I am now, I may do so for some time yet.

The cotton mill game may be likened to that of the farmers who raise cotton. They have no standard worked out to get the best production. One farms as his grandfather did and another along modern lines. Both get production. One works like the devil all the time, the other doesn't seem to be doing much but gets there just the same. Now the same thing applies to the mills. Some mills are in the rut they started in, others have moved forward and put in modern machinery. The same rule applies to the mills as do the farmers.

How can anything be made standard when such conditions exist. If all the mills on 4-yard sheetings, 48x52 picks, for example, would use the same number of machines in the picker room and four 40-inch cards per 1,000 spindles, with a draft

(Continued on Page 33)

Causes of Bad Spinning

A series of articles contributed to a Prize Contest on this Subject

Number Sixteen

In entering this contest, I am going to mention the things that I have found that will make spinning run bad. There is a cause for every end that comes down and are many causes for spinning running bad. We must find the cause before we can stop it.

When I was working as section man I used to walk the alleys and when I found an end down I would try to find out what made it come down, and repair it then.

If spindles are not plumb and frames are not level and in alignment, the spinning will not run good. Guide wires must be properly set. This is very important and they should be kept set to the right place. All cylinder bearings and pulley bushings should be kept in good condition so that there will be no vibration in frames. If the frames vibrate the ends will come down. Worn rings will cause the work to run bad. Travelers should not be run too long without changing. See that you have the right weight of travelers for the yarn you are making. If travelers are too light or too heavy the work will run bad.

If rolls are not exactly right for the kind of cotton you are using, the spinning will run bad. Rolls should not be set too wide or too close. They must be well lubricated so there will not be any friction. If too much oil is put on rolls and it gets back on the leather, it will make the work run bad and ruin the rolls also. If the leather on the rolls is not perfectly smooth the ends will come down. Ends will not stay up where there are bad rolls. All top roll levers should be set level and have the same pitch so there will be the same amount of weight on each roll.

Sometimes the section men or spinners, in cutting off laps, will cut the flutes on steel rolls and make them rough. This causes the ends to come down. Spinners should not be allowed to use a knife on rolls. Steel rolls should be kept clean and polished and free from foreign matter. If top rolls go too long without picking and get choked up, the work will not run good. Worn stands or roller necks will cause bad work. If top clearers are allowed to go too long without cleaning the ends will run bad and will make lots of bad work. The time between cleanings should be equally divided.

To much or not enough humidity will cause the work to run bad. This should be carefully watched. Also, the weights should be closely watched. If the yarn gets too heavy or too light it will not run right. If there is too much twist in the roving, it will not draw out as it should and will crease the leather rolls and have a tendency to come through whole at times, breaking down several ends in one place. Slubby or uneven roving, or hard ends in the roving will make bad spinning.

Spindles should be oiled well so they will turn freely. Old bobbins that are worn and do not fit the spindles will make the ends come down. Roving traverse should be watched closely and the stroke kept the right length. If the stroke is too short it will wear the leather rolls in the middle and cause ends to run bad. The length of the stroke should be equally divided so that the roving will not run too close to one end of the roll. Sometimes a little lint or cotton will get under one side of the ring rail and the rail will not be level, making bad work.

Spinning will not run right if the frames are dirty. You should have a good system of cleaning, having a certain time to clean everything and have it cleaned at that time. The draft gears must be set properly and kept well lubricated, so there will be no vibration in the rolls. Worn bolsters or bases will let the spindles vibrate and make the ends run bad.

If you have tape drive spinning, the tapes should be sewed on straight and the laps even. If laps are not even, the spindles will move up and down and cause the ends to come down.

Drafting is very important. There are so many different kinds of work that we cannot say just how much the draft should be, because a certain draft will not do for every kind of work. If draft is too long or too short, the spinning will run bad. Scavenger rolls should be kept covered with good cloth so that when an end comes down, the sliver will run around scavenger roll and not around leather or steel roll. Sometimes the gauge of the frame is too close for the number being spun and the threads cannot balloon enough without coming in contact with each other and ends will break down.

If the traveler cleaner gets bent too far away from the flange of the ring, or too close to the flange, or gets dirty, the work will run bad. Sometimes a ring here and there under a humidifier head will get a little water on it and rust, making ends run bad. You must have enough twist in the yarn for the number being spun, but there is a possibility of getting in too much twist.

I have had the experience of raising the stands on one frame 1 inch higher and changing the degree of the angle from front roll to guide wire from 45 to 22 degrees. This frame runs better than the other frames on the same number of yarn even at a higher rate if speed.

Porcelain steps in the creel will sometimes get cracked or roughened and will prevent the roving skewer turning easily. This will cause the roving to break in the creel and will add to bad running work. The clearer cloth on top clearers should be kept in good condition and should be turned every 5 or 6 months. If allowed to go too long without turning, it will

wear and will not keep leather rolls clean, and make bad running work. If the roving creels are not level and the roving skewers worn on the bottom, or if they are not straight or get roving wound around the top or bottom, the roving will pull in two. The lifter rod bushing will sometimes get worn or loose, letting the ring rail move about, causing the ends to run bad.

I have mentioned many things that may seem small, but they all count. Look after the little things and the big things will look after themselves. If all the things I mentioned are kept in proper condition and speed of frames is reasonable, I don't see why work will not run good.

Hard Worker.

Number Seventeen

In order to have good spinning we must know that the roving is O. K., that it is not being drafted too much on some process in the card room before we get it in the spinning room. We must know that we do not have too long a draft for the numbers being spun and that draft is not too short and that there is not too much tension. The above three things will give a spinner more trouble than any three that the writer knows of.

Knowing that our roving is all right, we will take up a few things that will make spinning run bad. First, we must have the frames in first-class condition, level and leveled, spindles plumbed and guide wires set directly over the center of the spindles. The latter point should be watched closely. Sometimes spindle plumbers leave the guide wires to some one who does not know how to set them and as section men go over the room setting spindles they should also have a guide set and should set the guide on every spindle they set.

Rollers should be set as near the length of the cotton being used as possible and kept properly oiled. They should never become dry from lack of oil. The writer has his spindles oiled every three weeks by a reliable person who will fill up the base cups as dry spindles make spinning run bad. Rolls should be looked after very closely and when one is choked up or skinned, it should be taken out.

Train the spinners to flag their frames by standing a roving bobbin in the back and let the section man put it in himself as he should know how to adjust stirrups and levers as the weight should be level to have the proper weight on the rolls. There should be no worn out bearings on the frame to cause vibration, as this will make spindles shake and run bad.

Spinning must be kept clean at all times or it will not run right. The rolls should be kept clean, steel rolls picked every week. The stands, front and back, should be picked each week. While most spinners do not pick stands because they are hard to pick, they should not be neglected or they will get very dirty.

Guide boards and weights should be cleaned every week, roving brushed and rails brushed about four times a day, as the cleaner you keep spinning the better it will run. Travelers play a very important part in spinning and should be closely watched. The right weight and kind should be selected to suit your work best. Travelers should not be allowed to run too long. I have them changed every 3 weeks. If your frames have traveler cups on them see that no cup has more than 10 or 12 travelers in it at once or they will rust and roughen the rings.

Well trained girl spinners play an important part in spinning and I do not believe that boys make good spinners. Doffers should be trained to do good work and to put up their own ends and not use box rollers and end piecers as the box rollers will break more ends than if doffers had put them up. Doffers should clean spindles once a week, commencing on the next to the last frame they doff and clean two or three each doff. By starting on the last ones, the frames will not stop on them after the first round if they clean the same amount each round.

Humidity should be watched carefully and kept as nearly uniform as possible. Now again, a word or two as to doffing. Use a head doffer with every set of doffers and after frame has been doffed and ends ends pieced up, he should go around the frames to see that there is no high end piecing and no high bobbins. On my filling, section men can handle warp without this man.

We all know that bands must be closely watched, tied on right, with as uniform tension as possible and the slack ones cut off. Good spinners can be trained to keep slack bands cut off. If we are running standard twist, spindles with slack bands make the ends come down, making soft yarn. Where spindles have small whirls I have bands split as small whirls will cut knots in two mighty fast.

Now if you watch the above things and keep your room clean, the floor and corners clean and bobbins and such things in place, I see no reason why spinning should run bad.

Al-

Number Eighteen

There are many causes of bad spinning several of which are the small ones that we do not notice as we should, or do not correct them as soon as they are found. We realize that the roving must be in good condition from the card room when we get it in the spinning or we will have bad running spinning.

Humidity in the spinning room is among the most important features in the room. There should be careful inspection and supervision to get the

(Continued on Page 24)

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American Association Committee Confers With Hoover

A large and representative committee of cotton manufacturers from the American Cotton Manufacturers Association met with Secretary Hoover in Washington on Tuesday, to discuss the problems of distribution and the collection and dissemination of fuller statistics. The result of the meeting was to recognize that this is a matter for the whole industry throughout the United States and the National Council of American Cotton Manufacturers was requested to call another meeting of representatives of the entire industry to be held in New York on Thursday, June 10, at Biltmore Hotel.

Secretary Hoover conferred with the cotton manufacturers at a luncheon at the Willard Hotel Tuesday and again in the afternoon he asked the committee to come to the Department of Commerce for a second conference. Dr. Julius Klein, director of the Bureau of Foreign and Domestic Commerce, and Edward T. Pickard, chief of the textile division of that bureau, took part in the conferences.

Among the matters discussed at the conferences were problems of distribution and the collection and dissemination of fuller statistics of the industry and business conditions affecting it.

"For years and years there have been periods of depression in the

industry causing curtailment and then periods of good business," said Winston Adams, of Charlotte, secretary of the American Cotton Manufacturers' Association, in explaining the purpose of the conference. "The Southern mill men are determined to go to the source and find out the cause of these depressions. Curtailment is not a real remedy and the basis of permanent remedy is what is being sought. It is the biggest thing ever undertaken by the manufacturers."

The committee met first at Atlanta to discuss the problem and later at Greenville, S. C., before the meeting this week.

Those attending the conference were:

W. J. Vereen, Moultrie, Ga.; J. P. Gossett, Williamston, S. C.; George S. Harris, Atlanta, Ga.; Howard Baetjer, Baltimore, Md.; J. C. Evins, Spartanburg, S. C.; H. R. Fitzgerald, Danville, Va.; B. E. Geer, Greenville, S. C.; Alex Long Rock Hill, S. C.; E. W. Swift, Columbus, Ga.; W. A. Erwin, Durham, N. C.; Stuart W. Cramer, Charlotte, N. C.; John A. Law, Spartanburg, S. C.; Allen F. Johnston, Lynchburg, Va.; Chas. A. Cannon, Kannapolis, N. C.; Julius W. Cone, Greensboro, N. C.; J. A. Gamewell, Lexington, N. C.; Robert Amory, Boston; J. D. Woodside, New York; T. M. Marchant, Greenville, S. C.; B. B. Gossett, Charlotte, N. C.; George E. Spofford, Langley, S. C.; W. D. Adams, Charlotte, N. C.; Hunter Marshall, Charlotte, N. C.; and W. M. McLaurine, Atlanta, Ga...

Georgia Mill Men To Meet June 21

Atlanta, Ga.—The annual meeting of the Cotton Manufacturers' Association of Georgia, which will be held at the Atlanta-Biltmore Hotel on Monday and Tuesday, June 1 and 22, promises to be the most important ever held by the organization, according to officials now working on the program.

Among the things which will come up for discussion at the annual meeting this year are business conditions, employe relations, insurance, marketing, advertising and many other items of vital interest to the industry at this particular time. While complete details of the program have not yet been worked out, of course, those attending the meeting can be assured that many prominent cotton manufacturers will be present and have places upon the program, and that a great deal of real, constructive work will be accomplished for the textile industry of the States.

Interest in and attendance upon the meeting of the Cotton Manufacturers' Association of Georgia are expected to be greatly stimulated by the meeting of the Cotton Shippers' Association, in April, and the Cotton Manufacturers' Association, in May, which brought to a focus many of the problems before the industry.

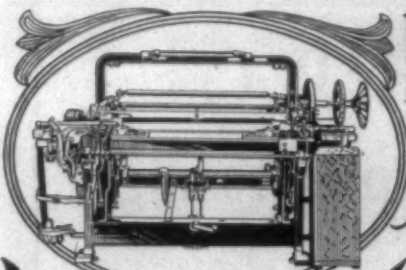
It is expected that nearly every mill in the State will be represented at the convention.

Elmira Mills Will Suspend Operations

Greensboro, N. C.—Lynn B. Williamson, of this city receiver for the Elmira Cotton Mills, of Burlington, is directed by order of Judge E. Yates Webb, of United States court, Western North Carolina district, in an order filed here in the office of the clerk, to continue to operate the mills until material on hand and in process of manufacture is converted into finished goods.

The receiver asked that this order be issued, his report being also filed in the office of the clerk of court. The receiver estimated that about 90 days would be required to make up the material in stock and in process.

Acting upon the petition-report of the receiver, Judge Webb also directed other things, among them that such supplies as are needed to supplement the stock on hand be purchased; that such sums as are needed to operate with pending sale of products be borrowed; that the receiver sell through William Iselin & Co., who have handled the product of the mill for years; that such sums as the receiver secures from sale of products except those necessary for carrying on the business be kept in hand until further order of the court; that 33 bales of cotton that is property of William, Inman & Co., cotton merchants, be returned to that concern; that the receiver conserve and preserve the property of the alleged bankrupt.



NORDRAY LOOMS

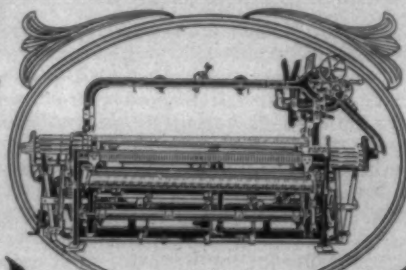
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Linen,
Jute,
Automatic,
Plain,
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Report of the receiver includes statistics compiled by J. D. Hightower, certified public accountant, showing financial condition of the Elmira Mill. The assets as estimated by the receiver are \$220,294.78; while the book value of such assets is \$779,352.91.

It is stated in the report that, while the receiver has attempted to be conservative in valuing manufactured goods on hand and material in progress and raw material, "still the market for these and similar goods and in fact for all lines of cotton and rayon cloths, is in the most depressed condition that has obtained for years and it is an open question whether such goods can be sold at even the low value fixed thereon by the receiver."

Wages of Women—South vs. North

In view of the agitation with respect to wages paid women in industry, particularly with respect to such wages in comparison to wages paid men in the same employment, a highly interesting and significant tabulation is given in the wage data compiled by the National Industrial Conference Board covering cotton textile employment for February, 1926. Male employees in Northern mills for this period received \$7.65 more than women employees engaged in the same work as compared with male employees engaged in the same work as compared with male employees in the South who received only \$3.79 more than women employees engaged in the same work. In other words the difference in favor of male employees as compared to women workers in Northern mills is just double the difference in Southern mills.

As to aggregate of wages, the Southern employee is just as highly paid as the Northern worker when the equivalents of compensation, such as practically free house rent, water, lights and fuel, coal at cost, etc., are taken into account, estimated at an average of \$4.36 per operative receives and which the Northern worker does not.

As for average hourly wages, the Northern male worker in February received 12.3 cents more than the women operatives for the same work while in the South the male worker received only 5.6 cents more than the female operative for the same work.—Acma Gazette.

When Will the End Come?

The real task before the American people today, in helping along national prosperity, says the Trenton Republican, is to check the alarming increase in state and local taxes and turn it into a decrease, as the national government has been doing.

It quotes a set of figures from the National Industrial Conference Board, which shows that the people of this nation paid not less than ten and a quarter billions of dollars in federal, state, municipal and local taxes for 1924.

The article comments on the fact that while there was a decrease of

\$385,000,000, or 10 per cent, in Federal taxes for that year, the state and local governments increased their levies by \$492,000,000, leaving a net increase of 107 million dollars.

Federal taxes have again been decreased, but local assessments will continue to climb until the people make their demands strong enough to convince the politicians that they really want a halt called on the mounting expenditures.—Associated Industries of Missouri.

Crop Condition Estimated At 65.9

The returns of the regular cotton crop correspondents of The Journal of Commerce of New York have all been tabulated and the usual averages struck.

That paper says:

For the States of North Carolina, South Carolina, Georgia, Alabama, Florida, Tennessee, Mississippi, Louisiana, Arkansas, Oklahoma, Missouri and Texas the present condition of the crop is thus estimated to be 65.9 per cent of normal, as compared with 73 per cent at this time last year and with 64.4 per cent in 1924.

Acreage Slightly Reduced.

"In these same States acreage devoted to the crop is said to be 2.3 per cent less than last year, which would indicate a planted (or to be planted) acreage of 46,376,000 in the States in question.

"If the usual formulae are applied these figures indicate an average per acre yield of 136.9 pounds and a total production of 13,279,586 bales in the area thus covered. It is to be questioned, however, whether sufficient accuracy inheres in such forecasts made so early in the season to render them of any real value. These estimates of production are merely presented for what they are worth.

Eighteen Days Late.

"Taking the situation as it averages in the twelve leading States already listed, the crop is reported to be eighteen days late, as compared with an estimate of seven days late on June 1 last year. The crop has been retarded in part by exceptionally heavy rains in some localities, but primarily by reason of unseasonably low temperatures that have prevailed throughout practically the entire belt, particularly during the time preceding the past week or ten days.

Conditions Vary.

"So much for the general figures and facts. As is always the case, there is a good deal in the details that is of considerable interest. So far as low temperatures are concerned and the consequent lateness of the crop, these conditions have obtained, and still do fairly generally over the entire belt, as the following table showing the days late each State is reported to be with its crop indicates:

Number of Days Late by States.

North Carolina, 16; South Carolina, 18; Georgia, 13; Florida, 18; Alabama, 14; Mississippi, 16; Louisiana, 22; Texas, 22; Arkansas, 14; Tennessee, 13; Missouri, 17; Oklahoma, 15.

Average (weighted days late, 18.



Why We Know ARK is Popular Repeat Orders Tell the Story

Repeat business is a barometer of popularity. An inspection of Philadelphia Belting Company's ledger will prove to you the tremendous popularity of ARK belting, in all classes of manufacturing plants.

For twenty years Philadelphia Belting Company ARK BRAND has stood for the best that could be produced in belting. Efficiency in operation, modern in design and entirely dependable in every way.

Therefore, it is not surprising that plant Superintendents, who have tried ARK Belting and learned what efficiency and dependable service it affords, order more as their requirements demand.

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Try an ARK belt on your next order, better yet, fill in the attached coupon, today, and mail to our nearest Branch.

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St.

Branches:
New York—50 Church Ct.
Chicago—614 West Lake St.
Detroit—429 Wayne St.
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ware and Supply Co.
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Philadelphia Belting Company,
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Please ship us on trial _____
Sgls., Dbls.
_____ ft. width _____ ARK Brand leather belt,
for use on _____ Kind of Machine. This belt
to be tried at your expense. If all you claim we will pay for it.
Please send us information and prices on the following:

Signed _____

Address _____

CAUSES OF BAD SPINNING

(Continued from Page 21)

best results, and the relative humidity should be sixty per cent for best results, with the dry bulb from seventy-five to eighty degrees and a difference of nine points between the wet and dry bulb will be close enough. Many phases on humidification could be written all of which would be good, but this is the essence of it all. Humidity must be kept right or it will cause bad running spinning.

Skewers must be looked after and all blunt points kept out or the roving will be pulled thin in places and cause bad running spinning. Therefore skewers should be repointed immediately after wearing blunt. Leather rollers can cause many hours of trouble if they are not systematically looked over. Too much dwell on roving traverse causes rollers to groove and many ends break down. The middle leather rollers should be at all times in good condition, the front rollers should be oiled often enough that at no time they become dry. The ends of the front rolls must also be looked after and not allowed to become dry. If they do, the result is, bad running spinning.

Under clearers should not be allowed to run with covering worn off or the end rollers to become worn off, and allowed to run. The under clearers can cause bad running spinning, if they are not in good order. Among the most important things is the little high-speeded spindle. If the spindle is not plumb with the ring, and guide set with the spindle, you will always have bad running spinning.

When the frame is leveled and lined the spindle should be plumb top and bottom, with guide set over the spindle. They should be gone over often as necessary to keep them in good order. The ring can cause so much bad running spinning, it is much better to pay the difference and get the extra-burnished and guaranteed round ring on all new rings. Keep in good rings at all times, and traveler cleaners in good condition so they will do their duty, or you will have bad running spinning. Rough, splintered top bobbins will cause bad running spinning.

Bands should be made from the best cotton to avoid so many coming off. When a band breaks off the fly roving flies out from the steel roller and catches in ends and causes bad running spinning. If tapes are used they should all be the same length, and the same laps, if not some will be slack and cause ends to break down which causes bad running spinning.

Oiling the spindles is very important as dry spindles will cause bad running spinning. The traveler is one among many small things about the spinning to cause very bad spinning, they must be changed periodically. And the proper kind, style and circle must be used to get the best results or you will have very bad running spinning. Cleaning is the same as in any other department in the mill. Dirty machinery will cause bad running spinning.

Each person will have to work out his own system the best suited for his class of work, and counts being spun. Any boy or girl spinner who does not have any pride about his work or machinery can and will cause bad running spinning. Doffers and cleaners, by their carelessness and indifference can cause bad running spinning. Assistant foreman and section men can be the cause of bad spinning by not keeping their part of the job in good order, and instructing the spinners in the proper way, to make their

work run good. The foreman should assist in all the ways he possibly can to instruct, direct and help carry out all details to prevent bad running spinning. We learn there are over one hundred different things that will cause bad running spinning, but we have only used a few of the very important ones, in my estimation, and trust they will be of some help to some fellow and put him to thinking more about them by doing so, he will become a better mill man, which is our only desire, to help our fellow man.

Fag.

Number Nineteen

I am a young spinner but I know some of the things that will make bad spinning. Among them are the following:

Draft too long or too short; not enough or too much twist; frames not leveled and lined; spindles not plumb top and bottom; guide wires not set right; separators not level, and if separators are used too long when they are turned back to doff, they strike against the roller beam and make a rough place on the blade and this will clip off ends when they are blown out; steel rolls and top rolls in bad shape; roving traverse not making the proper stroke; weight levers not leveled.

Improper setting of gears; worn rings; rings too large for the size of the empty warp bobbin; travelers too heavy when the frame is first doffed and too light when the bobbins get full; improper stroke on traverse. When a new ring is started up and set to a certain make of travelers I do not think any other make will give the proper service. It doesn't matter whether it is the same number and weigh the same in grains.

If filling quills have different bores, some of the bobbins won't come down on the spindles as far as others and you cannot regulate your travelers. Never sprinkle your filling long at a time as it will cause the quills to swell and you will have run under filling. See that you have the proper humidity in the room. Filling will not stand as much humidity as warp. Rolls should be kept clean and oiled properly. Top clearers should be kept in good shape and clean. Spindles should be oiled regularly.

High end piecing will cause trouble. Spinners should not be put on more sides than they can run well and keep clean. If you want a good running job, keep it clean. I do not think that an air system is good for spinning rooms. Clean with rags or brushes. Keep your job oiled as it should be and see that all the things I have mentioned are watched and if the spinning runs bad, you better look for trouble in roving. Short staple cotton often runs all right in the card room but gives trouble in spinning.

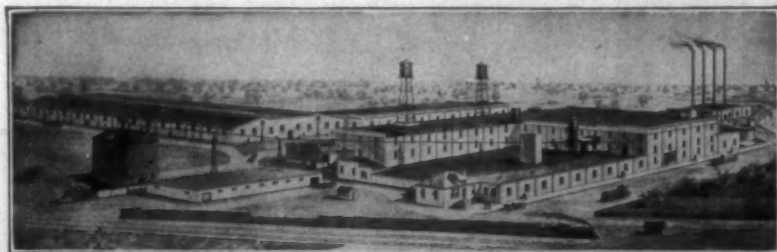
Ex-soldier.

Number Twenty

I will tell some of the things I would do to help bad spinning. At one mill in Georgia I put on right jack twist gears, put in new thread guides and opened steel rolls. I also made the frames run longer and let spinners run two more sides. In another mill in Georgia weak roving had pegged all screw holes at the roving traverse. I made a longer stroke, put on a lighter traveler and the work ran better. At another mill in Georgia I opened steel rolls and the work ran better. In another Georgia plant the work

(Continued on Page 32)

VICTOR MILL STARCH – The Weaver's Friend



It boils thin, penetrates the warps and carries the weight into cloth. It means good running work, satisfied help and one hundred per cent production.

We are in a position now to offer prompt shipments.

THE KEEVER STARCH COMPANY

COLUMBUS, OHIO

DANIEL H. WALLACE, Southern Agent, Greenville, S. C.

C. B. ILLER, Greenville, S. C.

L. J. CASTLE, Charlotte, N. C.

"Golly!"



said the President, "We can't advertise."

But we found the missing link, without which his advertising would largely have been wasted!

THEY had just about decided that it would be a mighty profitable thing for them to advertise.

It would certainly build their business, they agreed, if the consumer could be induced through the advertising to ask for their goods my name. But suddenly the president realized that there was a missing link in their chain of plans.

"Golly," he said, "we can't advertise! For look what would happen if we did. Our advertising would send consumers into our dealers' stores. The consumers would ask for our goods by name. The dealers would show them the material but—how could the consumer know that it is the goods she asked for. Our goods aren't marked. There's no way for the consumer to identify them. There's no way to prevent unscrupulous dealers from representing inferior goods as ours."

Consternation!

But if only there were some simple, inexpensive practical way to mark the goods, the problem would be solved. Then advertising could be started!

"That's easy," said the advertising manager. "How about Kaumagraphs?"

But if it hadn't been for Kaumagraphs it wouldn't have been so easy. For the Kaumagraph

Transfer method is the only *practical* method of trademarking textiles.

Kaumagraphs stamp your trademark on your goods, in any color, with a beautiful clean-cut mark that will neither smudge nor discolor, not permit re-transfer to another fabric.

Kaumagraph Dry Transfers are applied at any intervals desired along the selvage or as end stamps. They may be applied by machine as part of another operation; or by hand with a heated iron.

If you are not yet trademarking with Kaumagraphs, mail coupon at once for sample markings.

KAUMAGRAPH COMPANY

Established 1903

7 E. Third St.	-	-	-	Charlotte, N. C.
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Philadelphia	-	Paris, Ont.	-	Paris, Fa.

Kaumagraph Co.,
350-356 West 31st St., New York City.

Please send us sample markings of Kaumagraphs, together with full information.

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S. T. B. 6-3-26.

SOUTHERN TEXTILE BULLETIN

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Member of Associated Business Papers, Inc.

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JUNIOUS M. SMITH

Managing Editor
Associate Editor
Business Manager

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The Washington Meeting

REPORTS from the conference of the Committee of the American Cotton Manufacturers' Association with Secretary of Commerce Herbert Hoover in Washington, D. C., on Tuesday are that Secretary Hoover was found to be very much interested and that he will co-operate fully in working out some plan of stabilization.

At the suggestion of Secretary Hoover it was decided to make it a national movement and with that end in view it was decided to hold a meeting at the Biltmore Hotel in New York on June 10th and to invite the cotton manufacturers of New England to participate in that conference.

The development of the stabilization plan will be watched with much interest and it is our belief that some beneficial result will be obtained.

Sam Patterson

IN company with a large group of men, the editor of this journal last Sunday stood in a graveyard at Winston-Salem, N. C., and witnessed the remains of our friend, Samuel F. Patterson, consigned to its resting place.

We realized then and still realize more and more as time goes on that we have lost one of our best and staunchest friends.

In 1912, I asked Capt. Ellison A. Smyth, who is rightfully regarded as the dean of the textile industry of the South, to call a conference of a small number of mill men in order to form an organization for the

purpose of fighting the enactment of a Federal child labor law.

Capt. Smyth asked me who I wanted from North Carolina and I said "Sam Patterson and Buck Ruffin, because they are fighters," and I never had cause to regret that statement.

At the conference we formed the Executive Committee of Southern Cotton Manufacturers, with Sam Patterson as chairman, W. C. Ruffin as the North Carolina member and myself as secretary and treasurer.

The committee members from the other States always gave me their full support and co-operation, but on account of their proximity and my personal relations with them, I depended largely upon Sam Patterson and Buck Ruffin, and in the many conferences we held, most of them in Washington but sometimes in New York or North Carolina, I came to know both men very intimately and to appreciate their ability and many fine qualities.

There were many mill men who advised against any contest and we honestly believe that if it had not been for the determination of Patterson and Ruffin, the cotton mills of the South would today be under the domination of the agents of the U. S. Department of Labor and Federal centralization without the check that it has received would be extending into all phases of the activities of the States.

It happened several times that we found it impossible to proceed without assurance that funds would be available and invariably the answer of Sam Patterson was "Go ahead and if they do not give you the money I will pay it myself."

That was typical of him and gave

us the courage to keep up the fight

The mill men, however, always contributed the funds without hesitation and there was never any question about them after the first Federal child labor law was declared unconstitutional.

Although he attended the conferences and gave freely of his time, Sam Patterson would never accept one cent of expense money.

After the death of W. C. Ruffin, we had to depend entirely upon Sam Patterson and we doubt if any manufacturer knows or fully appreciates the work that he performed for the industry.

He was a man of very strong likes and dislikes and he never failed to let anyone know where he stood upon any subject.

He had his weaknesses and his faults, as have all men, but unlike many, he made no effort to hide them. Sam Patterson was never a hypocrite.

As a young man, six feet two inches, straight as an arrow and with a magnificent head, he was declared by many to be the handsomest man they had ever seen, and having known him then, we agree with that statement.

Until the sickness came upon him he was full of energy and rarely missed being at the mill when the machinery started.

He was intensely interested in the welfare of his employees and the practical welfare work which he established at Roanoke Rapids is a monument to him.

He won his position as one of the leaders of the textile industry and long delayed recognition of his ability and his service to the industry had just come through his election as president of the American Cotton Manufacturers' Association.

On account of our very close association with him and our affection for him, we feel his death very deeply.

Mrs. Leroy Springs Says We Will Manage Our Own Affairs

SPEAKING to the convention of the General Federation of Women's club, at Atlantic City, on the resolution reaffirming the stand of the organization on the amendment to the child labor law, Mrs. Leroy Springs, of Lancaster, S. C., announced that her state unanimously opposed federal regulation of child labor.

Only two minutes was allowed each speaker for debate and Mrs. Leroy Springs spoke as follows: "I come before you representing only one vote in this great body, but I speak to you in the name of the sovereign State of South Carolina. Our entire State delegation is unanimously opposed to endorsement of the child labor amendment, our State federation has never voted unfavorably, and public opinion is such in South Carolina and is arrayed against the measure. Not that we lack a deep and abiding interest in child welfare, but that we

claim and demand the right to regulate our own affairs. . . .

"I live in a cotton mill town, I have gone through the plants, I have visited the homes, the schools and the community houses. And I know the people of the mill community. . . .

"These people are contented, law abiding, patriotic Americans, but if by endorsement of a federal law you help to deny them the right of self-determination, then you will develop a spirit of unrest in the American home. I urge you and beseech you club women, to reject this resolution."

Last year the General Federation of Women's Clubs unanimously approved the Federal Child Labor Amendment, but this year, due to the able presentation of the opposition by Mrs. Leroy Springs, there were 250 of the 950 votes cast against approval.

The textile industry of the South is much indebted to Mrs. Springs for her fearless presentation of the truth.

Soviet Russia Changes Labor Regulations

MISS GRACE ABBOTT, Chief of the Children's Bureau of the U. S. Department of Labor, has had much to say in praise of the advancement of labor restrictions in Russia, and it must be embarrassing to her to read the following dispatch from that country:

The people's council of commissioners has made the following proposal for changes in soviet labor legislation:

1. Private employers of managers shall be permitted to discharge inefficient employees without consulting a workmen's committee.
2. Women and children shall be permitted to work at night.
3. The age limit of children permitted to work without a special permit shall be reduced from 16 to 15.

Mrs. Cowper, of Durham, N. C., the lady who spends most of her time trying to regulate the affairs of a State in which she has been a resident only a short while, carries on such an active correspondence with Russia that she no doubt has advance information upon this subject.

We regret to see any reduction in labor restrictions in Russia and hope there will never be any in this country, but we wonder what Miss Abbott and Mrs. Cowper will have to say about the above dispatch.

Charlotte Women to Wear Cotton Dresses

THE Woman's Club of Charlotte, with a very large membership, has made each member pledge herself to buy at least one cotton dress this summer.

They are also to have a card party on June 4th at which every woman is to wear a cotton dress and prizes are to be given for the prettiest dresses.

We highly commend this movement and could it be spread over the country and every woman buy one cotton dress, it would quickly restore prosperity to our industry.

Personal News

A. M. Bain is now superintendent of the Guilford Hosiery Mills, High Point, N. C.

E. A. Byrum is now superintendent of the Robbin Knitting Company, High Point, N. C.

Geo. D. Simpkins has resigned as overseer of spinning at the Manville-Jenckes Company, High Shoals, N. C.

F. L. Holliday has resigned as overseer of cloth room at the Dora Mills, Red Springs, N. C.

C. H. Kiefer has become superintendent of the Paducah Hosiery Mills, Paducah, Ky.

Harry L. Champion has resigned as manager of the Paducah Hosiery Mills, Paducah, Ky.

S. Schwartz has resigned as superintendent of the Maginnis Cotton Mills, New Orleans, La.

J. T. Knight has resigned as superintendent of the Yount Cotton Mills, Conover, N. C.

A. F. Smyre is now superintendent of the Yount Cotton Mills, Conover, N. C.

H. A. Wood has succeeded Frank Wood as president of the Edenton Cotton Mills, Edenton, N. C.

M. H. Armstrong has succeeded D. B. Maffey as superintendent of the Mountain View Mills Gastonia, N. C.

Joe Cultherson is now superintendent of the Glen Alpine Knitting Mills, Glen Alpine, N. C.

R. L. Bothwell is now superintendent of the Elliott Knitting Mills, Hickory, N. C.

P. A. Setzer is now superintendent of the Setz-Right Hosiery Mills, Hickory, N. C.

J. M. Brown has succeeded G. N. Rowe as secretary of the County Moore Mills, Hemp, N. C.

Arthur Russell has succeeded D. C. Elmore as superintendent of the Mutual Cotton Mills, Gastonia, N. C.

W. E. Cochran has been appointed secretary of the Princeton Hosiery Mills, Princeton, Ky.

S. H. Jordan has succeeded J. C. Reid as superintendent of the Glen Raven Cotton Mills, Glen Raven, N. C.

H. E. Jenkins has succeeded M. T. Poovey as superintendent of the Henry River Cotton Mills, Henry River, N. C.

M. C. Holderfield, has succeeded C. J. Boland as superintendent of the Victory Hosiery Mills, Burlington, N. C.

Zack L. Underwood, of the Erianger Mills, Lexington, N. C., is now overhauling spinning at the Nokomis Mills, of the same place.

E. G. McIver has resigned as manager of the Erwin Mills, Duke, N. C.

S. P. Parker has become superintendent of the Van-Moore Mills, Franklinton, N. C.

A. J. Blackwood has resigned as general superintendent of the Durham Hosiery Mills No. 4 and No. 7, at Chapel Hill, N. C.

Floyd Burns has been promoted general superintendent of Durham Hosiery Mills No. 4 and No. 7, Chapel Hill, N. C.

Paul Hughes of Haw River, N. C., has accepted the position of overseer of dyeing at Pilot Mills of the Consolidated Textile Company, Raleigh, N. C.

J. A. Rountree, formerly manager of the mills at Mobile, Ala., and at McKinney, Texas, now has a position with Hesslein & Co., New York City.

Mrs. E. Sternberger, president of the Revolution Cotton Mills, Greensboro, N. C., recently returned from a visit to Japan.

H. G. Leigh, formerly superintendent of the County Moore Mills, Hemp, N. C., has accepted a similar position at the Globe Manufacturing Company, Gaffney, S. C.

W. E. Griffin has succeeded W. H. Jennings as secretary and treasurer of the Pasquotank Hosiery Mills, Elizabeth City, N. C.

D. B. Murray has resigned as overseer of carding and twisting at the Cape Fear Cotton Mills, Fayetteville, N. C., to become night superintendent of the Marlboro Mill No. 1, McColl, S. C.

Roy H. Rouse, who recently resigned as night superintendent of the Manville-Jenckes Company, High Shoals, N. C., has become general overseer of weaving at the Darlington Manufacturing Company, Darlington, N. C.

Estate of Dr. J. F. Cleveland

Spartanburg, S. C.—The estate left by Dr. Jesse F. Cleveland, prominent textile manufacturer who died here two weeks ago, has been appraised at \$1,608,276.10. The largest single item was stocks and bonds, totaling \$732,162. The major portion of these were textile stocks, it is understood. Real estate owned by Dr. Cleveland was appraised at \$260,290.10. This did not include land valued at \$300,000 which was given his sons by Dr. Cleveland some prior to his death.

The four sons who share equally in the estate are John Z., Robert B., Arthur F., and Conrad P. Cleveland, all of whom live here.

Dr. Cleveland was the founder and for many years president of the Tucapau Mills, sold two years ago to Lockwood, Greene & Co.

Bobbins and Spools

Particular attention given to
All Types Of Warp
Bobbins For Filling Wind
Samples of such bobbins gladly
furnished

The Dana S. Courtney Co.
Chicopee, Mass.

A. B. CARTER, Southern Agt, Gastonia, N. C.

A new catalog of Blackmer
Rotary Pumps is just off the
press.

It contains much information
of value to those interested
in pumps and hydraulics.

*Your copy is ready.
Send for it.*

Blackmer Pump Company
1809 Century Avenue,
Grand Rapids (Formerly at Petoskey)
Michigan.

MILL NEWS ITEMS OF INTEREST

Villa Rica, Ga.—The Villa Rica Mills, Inc., which recently took over the Villa Rica Hosiery Mills, will enlarge the building by the erection of a one-story addition, 38x40 and install additional knitting and looping machines.

Harlingen, Texas.—The Valley Cotton Mills, which were recently incorporated here, as noted, expect to begin construction work on the plant in July. R. Roberts is president of the company.

Roseboro, N. C.—The machinery for the Roseboro Cotton Mills, which will have 5,000 spindles, is being furnished by the Saco-Lowell Shops. The building is more than half completed and about half of the 35 cottages have been completed.

Bremen, Ga.—In regard to the report last week that large tire fabric plant would be erected here. B. M. Grant & Co., of Atlanta, have announced that they have purchased a site of 1,000 acres near here which will be used by one of the larger tire companies for the erection of a fabric mill.

Chattanooga, Tenn.—Operation of the new 8,000 spindle addition at the Dixie Spinning Company, will be started by the end of this week it is thought. The new spinning will produce 58s, two-ply yarns. The addition was built under the supervision of Robert & Co., engineers.

Gaffney, S. C.—In order to overhaul all machinery, the Gaffney Manufacturing Company will close its mill Saturday, May 29, and will resume operations Monday morning, June 7. Officials of the mill said they cannot plan longer than two weeks ahead, but that they do not contemplate shutting down longer than one week.

Concord, N. C.—Good progress is being made on the addition to the Gibson Mills weave shed, the extension being 65x77 feet, 3 stories. The building will be used for a slasher and warper department. J. A. Gardner of Charlotte, has the building contract; Crawford and Slaten, Charlotte has the sprinkler contract. J. E. Serrine & Co., Greenville, are the engineers.

Greenville, S. C.—The capital stock of the Southern Worsted Corp. of this city was increased from \$1,200,000 to \$1,400,000.

No expansion was issued to take care of past operations.

The increase of the capital stock merely a refinancing plan, officials of the plant said, and has no decided significance.

Vice-President Fleisch and several others were here for the directors meeting. Notice of intention to increase the capital stock was made several weeks ago. No other business was transacted.

Belmont, N. C.—The machinery is now being installed in the addition to the Chronicle Mills. The new addition adds about 8,000 square feet of floor space to the mill.

Burlington, N. C.—Machine installation is going forward as rapidly as possible in the plant of the Perfection Hosiery Mills, Inc., new industry here with an authorized capital of \$100,000 and \$27,000 subscribed by John Schoffner, C. E. Fogleman, J. M. Moser, T. J. Black and others.

Workmen are also busy remodeling the building for another new hosiery mill formally announced several days ago. The second and third floors of this will be converted for manufacturing.

Each of these new hosiery plants will have installed the very latest automatic knitters for making novelty half hose, and each one is designed to become 100 mahine plants, at the same time with the assurance of maximum development beyond this point.

Newman, Ga.—Ground has just been broken near this place for a new mill which will produce 1,500,000 blankets annually, making it one of the largest blanket units in the South. The new plant is to be known as the Aruco Mills, with A. W. Arnall as president, treasurer and general manager, and R. D. Cole, vice-president.

The new company has a Georgia charter, and is capitalized at \$750,000, all common stock.

The directors are: A. W. Arnall, secretary, treasurer and manager of the Arnall Mills, Sargent, Ga.; R. D. Cole, vice-president of the R. D. Cole Manufacturing Co., Newnan; Judge R. W. Freeman, president of the Newman Cotton Mills; W. N. Banks, president of the Grantville Hosiery Mills, Grantville, Ga.; H. C. Arnall, president of H. C. Arnall merchandise Company, Newnan; E. G. Cole, general manager of R. D. Cole Manufacturing Company; B. M. Blackburn, treasurer of R. D. Cole Manufacturing Company; F. M. Arnall, vice-president of Arnall Mills;

T. S. Parrott, capitalist of Newnan; A. H. Freeman, attorney of Newnan; Garland M. Jones, capitalist of Newnan.

The blankets will be all cotton and cotton and wool mixed.

Lockwood, Greene & Co. have the contract for the engineering work of the new mill, which will be of the latest and finest pattern. Dobby and jacquard looms will be included in the equipment, and it is hoped to start operating in the fall of 1926. A modern dyeing and finishing plant is to be installed.

The product of the Aruco Mills is to be sold solely through the Farish Company, 100 Worth street.

The new plant is located in the famous peachtree section of Georgia. Its management and directors are men of long experience in cotton manufacturing, each having made a decided success in this business. The machinery is already under contract.

Thomaston, Ga.—R. E. Hightower, Sr., chairman of the board of directors of the Thomaston Cotton Mills, which recently obtained huge tire fabric orders and which is to build a \$1,000,000 mill here, is negotiating for the purchase of 13 miles of the Macon & Birmingham Railroad, abandoned several years ago.

The 13 miles desired pass through Thomaston, close to the cotton mills and extend into the peach growing sections of Upson county. Mr. Hightower sees an opportunity of serving not only the new mills, but the peach growers.

The Macon & Birmingham Railroad is in the hands of receivers. Hearing on a petition to junk the property has been referred by the Interstate Commerce Commission to the Georgia Public Service Commission for hearing on June 2.

If junking is ordered the receivers, Leon S. DePre and R. K. Hines, of Macon, Ga., will be able to consider Mr. Hightower's offer.

Chattanooga, Tenn.—Confirming the report that the McAllester Hosiery Mills had bought the Tennessee Textile Mills, William McAllester, manager said that the equipment of the company's present mills will be moved shortly into the newly equipped plant.

The Tennessee plant, which is at Alton Park, has been closed for about two years. Minor improvements will be made and the transfer of machinery from the McAllester Mills will begin in about 15 days.

The McAllester Mills will have capacity production of 1,500 to 2,000 dozen pairs of hosiery a day. The present equipment of the Tennessee mill includes 105 ribbers and 100 knitters. The McAllester company will continue to specialize in misses' and children's hosiery and a new line of fine count yarn is planned.

THE FARISH COMPANY

COMMISSION MERCHANTS

100 WORTH STREET

NEW YORK

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Casablanca Attachment Attracts Attention

The exhibit of a spinning frame with the Casablancas long draft attachments at 39 South Church St., Charlotte, N. C., has attracted large crowds, many mill men coming from a long distance.

The exhibit has been in charge of C. W. McSwain, of Greenville, S. C., but he was assisted last Saturday by A. H. Cottingham, general superintendent of the Victor-Monaghan Mills.

As a number of mills brought some of their own roving in order to have some spun into yarn on the Casablancas system, it will probably require several extra days to do such spinning and Mr. McSwain estimates that the frame will be operated through Friday and possibly Saturday of this week.

Holt-Granite-Puritan Mills in Receivership

Haw River, N. C.—The Holt-Granite-Puritan Mills Company, owning and operating textile plants here and at Fayetteville, N. C., Monday was placed in receivership upon order of Judge R. A. Nunn, presiding over a term of Superior court at Graham. The order was issued upon petition of F. L. Williamson, president and treasurer of the company. The Atlantic Bank and Trust Company, Greensboro, was named receiver.

The general depression in textile circles brought about the necessity for the receivership, the petition stated. The mills are equipped to manufacture a wide variety of materials but the general condition of the business made it necessary to bring about the liquidation in order to preserve assets, it was stated by E. S. Parker, Jr., Greensboro attorney, who, with James Mullen, Richmond, Va., attorney, was named to represent the receiver in handling the affairs of the mill company.

The indebtedness of the mills is in excess of \$500,000, but if the plants bring any approximating their real value, it is said, all indebtedness will be paid in full and the

first preferred shareholders will realize on their investment. The company has a capitalization of \$1,500,000, first preferred stock consisting of \$600,000, second preferred of \$700,000, and common, \$200,000.

Mr. Williamson, the secretary and treasurer of the company, Mr. Parker said, has worked diligently and faithfully, but market conditions have been and are such that the mills cannot be operated on the fabrics they are fitted to make save at a loss, and because of the necessity for funds to pay maturing obligations, it was decided that the best course was to liquidate the affairs

of the corporation through the courts.

The order signed by Judge Nunn instructed the receiver to file a report showing the exact condition of the company. What will be done hereafter will depend upon future order of the court.

Organize Textile Club

The Rutherford County Textile Club was organized at a meeting of superintendents, overseers and others from the mills in Rutherford County, N. C., the organization meeting being held at Forest City.

Seventy-one men were present, representing all of the mills of the county. Officers of the club were elected as follows: W. S. Moore, president, N. H. Welch, vice-president, G. V. Frye, secretary and N. A. Gregg, assistant secretary.

It was decided that there should be a vice president at each place represented and the following were elected: S. A. Summey, Alexander; P. C. Hawkins, Cliffside; James Goode, Avondale; E. W. Jordan, Forest City; A. W. Young, Rutherfordton; C. H. Lockman, Caroleen; J. D. Mauney, Henrietta; J. O. Williams, Spindale; L. R. Brooks, Ellenboro.

The subject chosen for round table discussion at the next meeting is "Opening, Mixing, and Picking." While this is not primarily a social club, doubtless great pleasure and benefits will be derived from the mingling with each other by these men who represent one of the greatest industries in the county and good fellowship will be promoted.

The meeting was enlivened Saturday night when N. H. Welch, asked for the suspension of business for a few minutes while musicians took their places and struck up some old fashioned breakdown music. This proved too much for two of the members who gave an impromptu exhibition of old time dancing, much to the delight of their audience.

A supper prepared under the direction of Mrs. R. R. Blanton, was served Saturday night and the club gave a rising vote of thanks to Mrs. Blanton for the excellent repast.

N. E. Southern Mills' 3 Months' Loss, \$62,833.

Boston, Mass.—For the first quarter of the present year, New England Southern Mills report a loss after charges, including depreciation of \$62,833. In the corresponding quarter last year the company reported a profit of 153,986.

Income account for the three months ending March 31, 1926, is as follows: Sales, \$4,104,663; manufacturing profit, \$355,658; current interest, \$90,422; note interest, \$160,176; depreciation, \$132,857; Canadian income tax, \$10,000; miscellaneous, \$1,664; less minority stock interest, \$14,372; net loss, \$62,833.

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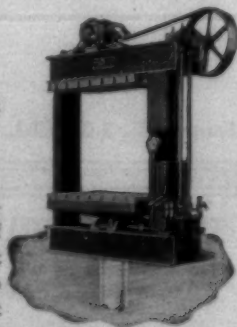
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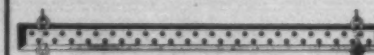
Atlanta
Georgia

Boston
Massachusetts

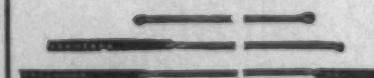
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Progress in Bleaching

THE story of bleaching is interesting. Lime was first used as a bleaching agent over two thousand years ago, and the fact that bleaching became common in agricultural districts on the Continent was due to the discovery that buttermilk was a good reagent. The North of Ireland had its bleaching greens before England had properly started with the industry in the eighteenth century. In the Manchester area Gorton seems to have been the first district to possess a bleachworks. The arrival of the industrial era, with the advent of steam and machinery, and the consequent general increase of production, was a tremendous encouragement to everything connected with textiles, and, when chlorine was found to be a bleaching agent, the introduction of chlorine compounds, finally in the form of bleaching powder, the first being discovered in 1798 by Charles Tennant, placed in the hands of the bleachers the power to extend their operations beyond any limits they had previously envisaged. Bleaching became a chemical industry.

The new discovery showed how

uneconomical had been the antiquated methods in use. Chemical compounds abolished the use of ash from burning weeds, and in place of the earthenware pots over coal fires for boiling the cloth—the washing being done by the treading of feet—came the kier for heating the cloth. The early bleachworks were built alongside streams, power being supplied by water-wheels, but when steam-power was used in the cotton industry it was inevitable that its value should be recognized by the bleaching industry. Experts are not quite certain whether steam was first adopted for heating or drying in bleachworks.

At the beginning of the nineteenth century steam engines were at work in the bleaching industry, and about that time the whale boiler for boiling cloth was introduced. The cloth was filled into one part and the steam sent by an injector up a pipe, causing liquor to move against a plate and be showered over a cloth, thence passing through a false bottom into another space, resulting in the heating and circulation of the lye. This type of kier, an open kier, is common still, much of the cotton cloth being bleached in that way.

Later, to conserve heat and keep up a higher temperature, a lid was placed on the kier, and then came the pressure keir. The bleachers who had trouble with their goods turning up soft and not taking uniform shades decided to try treatment of cloth under pressure. Experiments were made with keirs, one of them, the Pendlebury, containing a main vessel filled with the cloth and a smaller vessel containing the lye, which was pressed by steam on to the cloth and then withdrawn to the smaller vessel. While the lye and the cloth were apart, the cloth was steamed and then again heated with the lye, and so on, for some hours. The Barlow keir had two large keirs and one small one containing the lye.

But fresh processes sometimes solve some problems and raise others. The use of direct steam in boiling the keirs was blamed for the existence of stains on cloth, and keirs were made in which the heating was done by a coil through which steam passed but did not enter the liquor used in the keir. Afterwards keirs were again devised where steam was applied direct.

By the introduction of vitrol for

scouring instead of buttermilk, the invention of bleaching agents, and the application of artificial soda the process of bleaching was cut down from several weeks to a few days, and as the sun was also cut out of the programme the work could be carried on efficiently in the winter as well as in the summer.

Another factor which had a big effect on the industry was the great improvement in the method of putting the cloths through the various processes. Before 1845 all cotton piece goods were bleached in what was known as the hundle. One, two or three pieces of cloth were taken as a unit and lifted by hand to each part of the bleaching process. The bundles were packed and boiled in the keir, taken out by hand, drained, washed in the dash wheel, etc.—a very laborious work. A patent for continuous bleaching was taken out in 1828 by Bentley, of Pendleton, but it was not till 1845 that continuous bleaching began. Then J. Brooks, of Sunnyside, sewed the ends of cotton pieces together, giving a continuous band of cloth, which was kept in rope form, without separating the pieces, all through the bleaching processes.

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Our Automatic Shuttles are giving Perfect Satisfaction in Leading Mills throughout the country on all classes of work

Further efficiency followed by means of the washing machine, enabling bleachers to deal with larger quantities of cloth. Other machines, winches and rollers for conveying the cloth and sewing machines for stitching the ends of the pieces together, were invented, and, generally, new engineering devices were readily adopted throughout the trade. One result of all this was that many bleachhouses had two crofts, the hand former being the larger, but naturally, as time went on, more and more goods were manipulated by the machines and the machine croft became the larger one. Few hand crofts now remain, and they are only used for special kinds of goods. The work of Ridgway and Bridson on the stationary and progressive stenter of Bridson's production or the Victoria finish on lawns was very important to the industry.

The visitor to a bleachworks whose knowledge of the trade is indefinite is surprised by many things, but by none more than the sight of the cloth passing over redhot plates the singeing removing the downy pile and short threads from the surface of the cloth. He wonders why the material does not blaze up. Afterwards the cloth is sometimes steeped in water to remove the size or run through a lining machine, where it is saturated with milk of lime and later boiled in a keir for some hours. Washing then alternates with treatment by acid, alkali, and the chemicing process which whitens the cloth by means of a solution of bleaching powder. Further processes, which vary in differ-

ent works, precede the finishing.

It will thus be gathered that bleaching and finishing have developed from rough-and-ready to highly scientific industries. Specialization, backed by long experience and research work, enables the bleachers in this country to maintain their prestige and their recognized standards of efficiency. When bleachworks were solely concerned with their own particular production, each spending money on similar efforts for improvement, costs were maintained at a comparatively high level, and progress was not what it might have been. The formation of the Bleachers' Association, Limited, however, led to co-operation and harmonious endeavor, exchange of views leading more rapidly to improved methods, and at the same time provided customers with goods at a price which could not have been thought of without unity of action. Lower costs have meant cheaper goods.—Manchester (Eng.) Guardian.

New York Cotton Exchange Handled Half Million Bales.

New York.—More than half a-million bales of the world's largest cotton crop were delivered on New York cotton exchange contract during the past year, president Richard T. Harriss pointed out in the annual report of the exchange.

The report called attention to the addition of a traffic department in the machinery of the exchange to secure storage-in-transit privileges for the cotton going to New England and European ports.

SUPERINTENDENTS AND OVERSEERS.

We wish to obtain a complete list of the superintendents and overseers of every cotton mill in the South. Please fill in the enclosed blank and send it to us.

1923

Name of Mill _____

Town _____

Spinning Spindles _____

Looms _____

Superintendent _____

Carder _____

Spinner _____

Weaver _____

Cloth Room _____

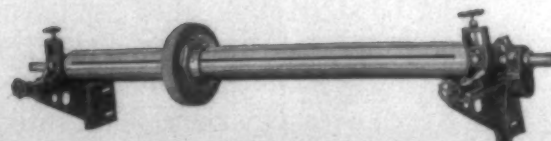
Dyer _____

Master Mechanic _____

Recent changes _____



B.S. Roy & Son Co.
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Roy Calender Roll Grinder

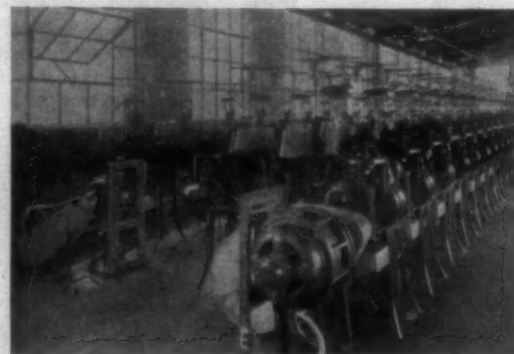
Grinds the rolls true without removal from housings—in their own bearings.

Used with great success in hundreds of mills in this as well as many foreign countries.

We shall be glad of an opportunity to talk over the economy of the Roy Roll Grinder in your mill.

E. M. Terryberry, Southern Agent
126 Healey Bldg., Atlanta, Ga.

Textile Mill Drives



5 H. P. Morse Silent Chain Drives from motors to knitting machines. Driver, 870 r. p. m., Driven, 178 r. p. m., 27-inch centers.

Permitting the closer spacing of machines, Morse Textile Mill Drives make for greater production and better working conditions.

98.6% efficient, positive, flexible.

Over 5,000,000 H. P. have been installed in almost every industry and many are still serving after 15 and 20 years of use.

Booklet "A Chain of Evidence from Textile Mills" on request.

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Practical
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DIAL
BRUSH



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BRUSH

An important material, which you may not be able to see when comparing two new brushes, shows as the brush is used. When the Perkins Practical Brush with experience built into it continues to wear long after other brushes have worn out, experience proves itself the most important material used in brush making.

9 out of 10

Perkins Practical Brushes are chock full of experience—the experience of 9 out of 10 Southern cotton mills who depend on the quality of Perkins Practical Brushes to cut costs, avoid delays and profit-eating tangles. From this has grown our experience in selecting just the right bristle or fibre for each brush job in a cotton mill, our experience in setting the tufts so that they will stay put and do the work, our experience in solving unusual and temper-testing brush problems for these satisfied customers.

This experience makes possible our absolute guarantee of every Perkins Practical Brush and the lower prices which result from volume manufacturing. You can enjoy and profit by this experience. Before buying your 1926-27 supply of brushes, write for Perkins prices.

ATLANTA BRUSH CO.
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Textile
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Maximum Production
Minimum Cost of Upkeep
Unexcelled Quality of Work

THE MERROW MACHINE COMPANY

20 Laurel Street, Hartford, Conn

CAUSES OF BAD SPINNING

(Continued from Page 20)

seemed to run bad right after doffing and to run better after the frame was half full. Every man that had been in this mill, when he made a change, found that the doffers would quit. I knew this before hand so I carried two good doffers along. The doffers were causing the trouble, so I took off the end piecers and put them to doffing, so all the doffers quit. Well, I did not stop. The warp ran fine with the new doffers. I also took the spinners off from around the frames and gave them sides.

At a mill in Alabama I put on a lighter traveler. I also changed from round point to square point traveler on filling and this helped the work. My work also included a system or time for cleaning all machinery, also for cleaning down and a system for oiling and fixing. A man who cannot fix frames but who says he is a section man can ruin more steel rolls and knock out more spinning than two good men can fix when a new man comes.

New frames will make bad yarn from the same hank roving that is being run on old frames and making good yarn. With the same settings, bad doublings from the card room make cocked yarn. Worn steel rolls do not have to be opened as wide as new rolls. Too much glue on roll flannels will make a hard cushion. This must be corrected to help the work.

I am located now in a section where we only have one rain in seven months. I guess that would cause trouble for spinners in other parts of the country, but my spinning runs fine in spite of the dry weather and even when the sand storms come in the spring. I use a little air with the humidity and the work runs good.

It is not necessary for a job to have to be straightened up except where a check system is used. The checker forgets and the work runs bad. I stopped the check system some years ago. It is better to check our than check up. You will agree that the help wants the work run good. I run my frames just so long before doffing. I taught all my help, having only three spinners that learned in other mills. They have been working for me five years and that is a great benefit for my system.

I will not take up the little things. They are included with the cleaning. Our weaving is running better than it ever did on my system of running the spinning.

L. M. A. E.

Number Twenty-one

All spinning should be kept clean at all times. Rollers should be picked at the proper times and the oiling watched closely. You should not use oil so thick that it will cake on the back saddle and fail to pass through the wicks, thus causing a lump to form under middle roller, making the end run out at the side.

Levers and stirrups should be adjusted so as to keep the same weight on all rollers. Spindles should not be allowed to run dry. Burning the bolster causes the spindle to be out. Spindles should be oiled every 3 or 4 weeks by a person who will fill the base cups. Section men should be watched until you are positive they are capable of taking care of the machinery given them.

Travelers play an important part in good spinning. A test should be made to see just what traveler is required to run the work. Roving should be kept up with all the time.

Uneven draft where roving is lumpy will cause ends to break at the ring on spinning. This is caused from too much tension on the frames. All roving guides should be gone over at least once every week by the section men to see that they do not vary too far one side of the stand, causing the rolls to be ruined. Spinners should not have too many sides as ends will be down too long, causing more tension on that end than on others.

Humidity should be watched, keeping it as near the same as possible. The floor should be kept clean at all times, as a dirty floor will make spinning run bad. Doffers should clean off at regular times, keeping their part clean at all times. They should be trained to doff ends right, as ends that are pieced up have loose threads flying around and will not run, tearing down other ends.

Bands should be watched so as to get as nearly the same tension on all spindles as possible. Slack bands should be broken off for they will make spinning run bad, and also make bad yarn. All frames should be overhauled at least once a year, spindles and guides set and frames leveled. Frames should have good bearings, so they will not shake and cause the spindles to vibrate in and out.

Twist should be standard as too much twist is just about as bad as not enough. If the above is followed, I see no reason why spinning should run bad.

Bill.

Labor Turnover for First Quarter of 1926

The matter of labor turnover is not usually given enough consideration by the cotton mills of the South. The Carolina Cotton and Woolen Mills, at Spray, N. C., do give labor turnover serious consideration and the follow-

ing report for the first quarter of 1926 as compared to other years, as published in the Arrow, will be found interesting.

During the first quarter of 1926 we find that fewer people have left to go to the farms than in any first quarter since we have been keeping a record of the reasons for leaving. Perhaps our folks have come to the conclusions that they lose money in the long run by changing so often. We have heard many people who returned to us from the farms during last fall and winter express the opinion that they would have done much better if they had remained in the mills instead of going to the farm. Workers must learn, and we believe they are learning, that they gain by sticking at one place. This constant changing from one job to another, whether it be farming or something else, nearly always results in a financial loss.

Another thing that we noticed during this quarter was the fact that so few people quit on account of the bad health of themselves or family. Are we coming to a point where we are learning to better safeguard our health? We hope so, for in order to stay on the job one must keep his health in such condition that he can do efficient work.

We want every one to study carefully the turnover figures for the first quarter of 1926 which we are giving below. The figures show that our people are trying to keep the turnover as low as possible. Most of the plants show that they have reduced their turnover to a lower percentage than they had one year ago. The turnover for the Company is lower than for any similar quarter since we have been keeping a record.

For the sake of comparison, we are giving the figures for similar periods of four previous years. The figures are as follows:

Plant	1926		Yearly Rate of T. O. for First Quarter				
	Avg.	No.	1926	1925	1924	1923	1922
American Warehouse ...	365	17	18.8	40.8	52.4	69.2	54.4
Spray Bleachery	159	7	17.6	8.4	27.2	51.2	32.
Nantucket	275	8	11.6	43.6	38.4	48.8	53.6
Lily	211	24	45.6	26.8	32.8	28.	52.
Rhode Island	320	16	20.	35.2	45.2	28.	52.
Spray Woolen	302	16	31.6	35.6	76.	50.	43.6
D. A.	608	31	20.4	49.2	60.	69.6	48.6
W. W. S.	459	51	44.4	136.	84.4	133.2	99.6
(Day)	(254)	(13)	(20.4)	(87.2)	(60.)	(92.8)	
(Night)	(205)	(38)	(73.6)	(198.5)	(116.)	(184.)	
Fieldale	646	135	83.6	82.	60.	113.2	61.6
Bedsread	346	36	41.6	63.2	80.	72.8	36.4
Welfare and Health	30	1	13.2	0.	30.8	40.2	
Total	3721	350	37.6	58.8	59.4	76.8	60.24

Cotton and Manufactures Exports

Washington, D. C.—Department of Commerce gives the total values of exports of cotton and cotton manufactures for March and nine months ended March, as follows:

	1926	1925
March:		
Raw cotton (including linters)	\$54,063,574	\$95,576,215
Cotton manufactures	11,697,923	14,755,617
Total	\$65,761,497	\$110,331,832
Nine months ended March:		
Raw cotton (including linters)	\$789,841,703	\$930,630,870
Cotton manufactures	104,690,201	109,851,920
Total	\$894,690,904	\$1,040,482,790

Practical Discussions

(Continued from Page 20)

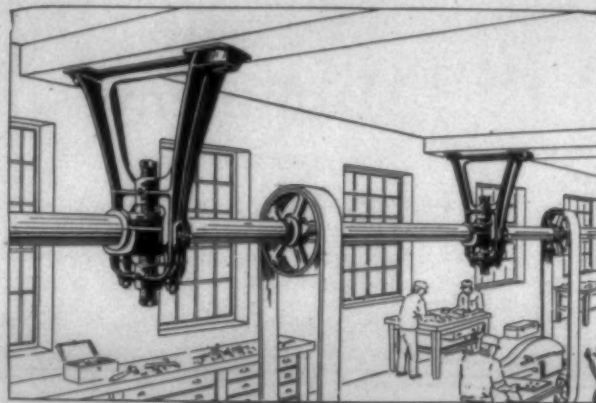
of 95 for card, one system of drawing, draft 5.80, slubber draft 3.75, intermediate 5, speeder 5.80, spinning 10.75 (these drafts are not fixed and can be changed slightly to suit the number of yarn which would be about 19.50 warp and 25s filling, and use a cotton that will pull 15-16s; have a humidity system to suit the section of the country the mill is located in, we could then fix a standard. We would have standard speeds on all machines, standard production, amount of oil and supplies, etc., the number of operatives required. But when conditions like that arrive, the mill business will lose what now attracts us all, the excitement we get out of our daily toil and trying to beat the other fellow.

No, brother, "there ain't no standard," except what you make to

govern your own conditions. The carders and spinners meetings bring out what the other fellow is doing and then gives you an eye opener and an idea that probably you can do as he is doing, but you never thought it could be done that way. After you try it and it will not work, you find you are as well off as he is, because you are both getting results by different methods. There are as many standards in the textile industry as there are mills and there will be so long as cotton grows the mixed staples we have to contend with, making a standard necessary in each mill. No. 40.

Mill Shares Continue Decline.

The general average of 25 representative issues of the Southern cotton mill corporations continues to show a decline from previous weeks, according to R. S. Dickson & Co.



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Faithful, enduring, that hanger overhead gives continuous, uninterrupted service requiring a minimum of attention.

Hangers are put up to stay up. Considering the length of service of a good hanger, the cost, spread over a period of years, is negligible.

Universal Giant Cast Iron Hangers are made to endure. They are everlasting. Once installed, they perform the tasks assigned them without trouble or attention.

Day in and day out, year after year, you'll secure satisfactory service from your power transmission units if you specify the U. G. Line.

The "Universal Giant" Hanger provides cast iron permanence, strength and safety. Unique features of U. G. Hangers include the ball and socket movement of bearing that, combined with a most satisfactory method of vertical and lateral adjustment within the frame, permits automatic alignment of shaft.

Universal Giant Hangers are carried in stock by dealers in principle cities. There is one near you. On that next order, call him up!

Manufacturers of power transmission machinery since 1857

T. B. Wood Sons Co.

Chambersburg, Pa.

NEW ENGLAND BRANCH:
Cambridge, Mass.

SOUTHERN BRANCH:
Greenville, S.C.



Cast Iron Hangers and Pulleys, Flexible Couplings, Friction Clutches, U. G. Short Center Connectors—a complete line of Power Transmission Appliances.

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Red Lead—Graphite Primer
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Textile Problems

(New York Journal of Commerce)

Fortunately there is little real obscurity about the basic nature of the problems of the textile industry in this country and indeed not a great deal of difference of opinion. This important group of American manufacturers, both North and South, are and have been for several years suffering primarily from overexpanded mill capacity and secondarily from some other factors such, for example, as the fact that textile manufacturing equipment in other countries is, and has right along been, similarly overbuilt at a time when by far the larger part of the consuming population of Europe is in no position to pay for even normal amounts of goods. Until relatively recently, at all events, the state of affairs thus produced has been further complicated by the persistence of high prices for raw materials. All this is perfectly well understood by mill and other textile interests and usually rather frankly admitted. When, however, the question of what ought to be done to remedy the situation or, at least, to alleviate it, pending the gradual disappearance of adverse world conditions which alone can be depended upon to right the fundamentals of the matter, is raised, a rather different state of affairs is presented.

The meetings of Southern manufacturing interests in Atlanta that have been attracting a good deal of attention during the past few days serve rather admirably to illustrate one trend of thought that is current with respect to practical policies. Here the drift of sentiment seems to be distinctly in the direction of centralized control of one sort, or another in an effort to eliminate at least the more troublesome difficulties inevitably arising in such circumstances from unrestricted and unfettered competition. It is rather more than probable that if we had no fairly rigid anti-trust laws upon our national statute books the movement in this direction would go a long way toward monopolistics control and the elimination of competition among the groups represented by the American Cotton Manufacturers Association, or at least such would be the case were it not for the fact that New England competitors of Southern mills are not nearly so much enamoured of the idea that seems to have gained strong hold in States that still with their lips worship the memory of Thomas Jefferson and from which philippics against "trusts" have so often been heard. Agreement with these groups on the general proposition that it would be highly advantageous to them and to the nation if production could be regularized and if, so long as there is not demand enough to keep all plants running at all times, the less efficient could be eliminated from the picture in some way leaving the mills with low costs regularly and more or less fully occupied is quite possible without, at the same time, indorsing such proposals as apparently not a few of them would like to make for the purpose of attaining these ends. A textile "institute" or any other

statistical organization that will be effective for the purpose of compiling and publishing statistical and other information of a useful character might and probably would serve a useful purpose. If, however, such an institution did no more than that it would not accomplish the object apparently desired; if it were so organized and operated that it would serve the purposes for which not a few would have it created, it would little less than surely run afoul of our anti-trust laws and at one time or another come to an inglorious end as it should. As real and as disastrous as cut-throat competition in its more aggravated forms inevitably is in an industrial situation such as exists in our textile industry at the present time, neither that branch of business nor the country at large can afford to permit the establishment of monopolistic, price fixing control of affairs. The time has come for a plain statement of that fact.

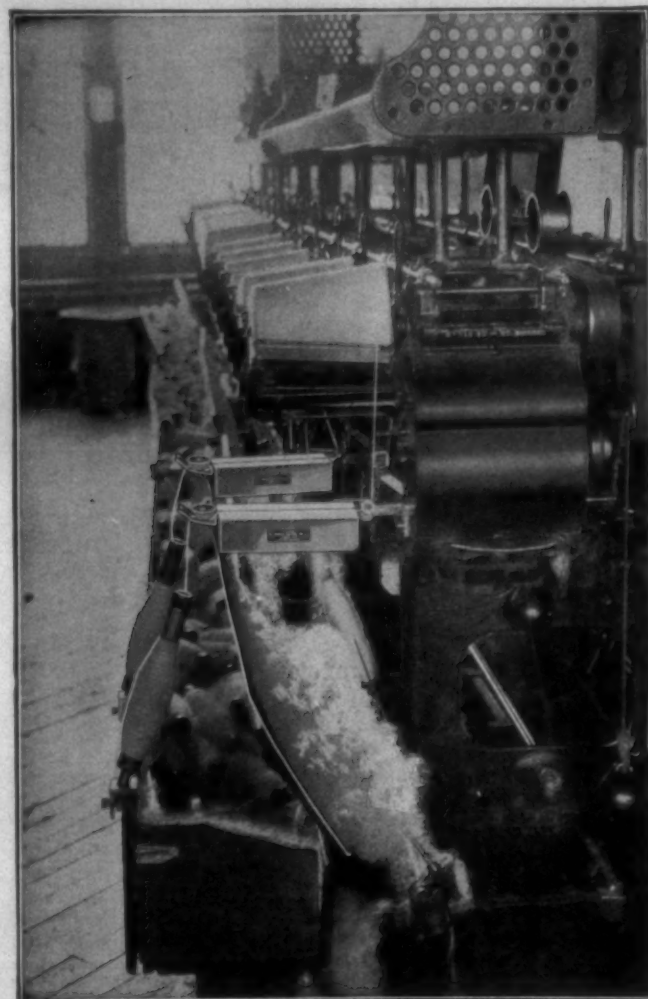
Good merchandising, careful management, sound judgment in the selection of production programs, and the utmost vigor in all efforts to keep costs down to a minimum are, after all, about the best palliatives for a situation of this sort which only time can completely cure. With cotton and other raw materials much more reasonably priced, and with such improvements as have already been found feasible in manufacturing and distributing textile goods in this country, the outlook before the textile industry is not hopeless by any means. Indeed not a few competent students of the situation are now inclined to the view that somewhat better things are in store for that much vexed branch of business. The situation existing in the textile world is but a rather extreme example of what faces a goodly number of our other industries or is likely to face them before very long. In none of them can we afford to give support to counsels of weakness or timidity that would resort to monopoly to relieve them of their troubles.

Textile School Notes

Raleigh, N. C.—The seniors of the textile school of North Carolina State College have just completed their third education trip of the year. On the trip they visited the Roanoke Manufacturing Company, the Patterson Mills Company, and the Rosemary Manufacturing Company all three of which are located at Roanoke Rapids.

The Rosemary company owns one of the largest jacquard mills in America. This mill makes all kinds of table covers and damask fabrics. The mills of the other two companies makes a variety of fabrics, including dress goods and fabrics which are napped. This process of finishing fabrics produces a wooly effect on cotton. These mills also dye their own yarns and fabrics.

The students were also much interested in the community work carried on by the mills. These mills maintain their own hospital for the benefit of the mill employees. They have also done much in other ways to improve living conditions.



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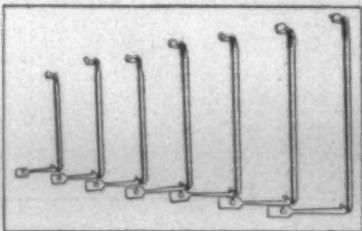
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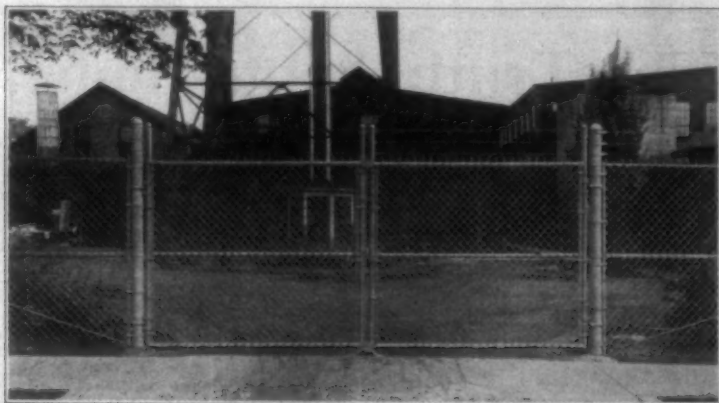


This company will put all shafts in aligning and level, using the internationally recognized Kinkead system.

The cost of remedying shaft troubles will not equal the losses of a few days' operation of shafting out of alignment or level.

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PAGE FENCE

Samuel F. Patterson

(Continued from Page 12)

vice-president, and finally in recognition of eminent services rendered, he was elevated to the presidency, at its Atlanta convention.

"He displayed unusual interest in his own State cotton manufacturers' association, and at the time of his death was its chief executive. A man of superb intellect, notable achievements in constructive effort, of delightful charm of manner, and of commanding personality, he will be greatly missed in Southern textile textile industrial circles."

"I considered Mr. Patterson one of the outstanding mill men of the South," said E. C. Dwelle, treasurer of the Chadwick-Hoskins Co., and former president of the Cotton Manufacturers' Association of North Carolina. "He exerted a very strong influence in the development of the industry, and we will all miss his wise counsel and advice."

"The whole Southern industry, as well as the North Carolina mills suffer a severe loss in the passing of Mr. Patterson," according to Hunter Marshall, Jr., secretary of the Cotton Manufacturers' Association of North Carolina.

"Mr. Patterson's ability as an operator of cotton mills, and in financial affairs was due in a large measure," Mr. Marshall said, "to the fact that he worked his way from the bottom of the ladder to the top."

Expressions of regret at the death of Samuel F. Patterson, recently elected president of the American Cotton Manufacturers Association, were frequent among mill men of Greenville, and surrounding country.

J. P. Gossett, of Williamston, first vice-president of the American Cotton Association, was one of those who commented upon the death of Mr. Patterson. Mr. Gossett assumes the presidency of the association upon the death of Mr. Patterson.

Mr. Gossett paid a high tribute to Mr. Patterson, saying he was a remarkable business man, and that his death was a distinct loss to the manufacturers association.

J. H. Morgan, president of the American Spinning Company said:

"Mr. Patterson will be sadly missed by his associates in the cotton manufacturing business."

B. B. Gossett, president of the Chadwick-Hoskins Co., Charlotte, N. C., gave the following testimonial:

"In the death of Samuel F. Patterson, the textile industry has lost one of its foremost men. He was the largest manufacturers of damask in the world. His outstanding ability and leadership was given recognition only last week, when he was elected president of the American Cotton Manufacturers Association. A year ago, he had been made president of the Cotton Manufacturers Association of North Carolina."

"Mr. Patterson was a man of strong and forceful personality, and great magnetism. He enjoyed a wide circle of friends, not only in North Carolina, but throughout the entire country. His death brings to me, along with a host of others, a deep sense of personal loss."

William J. Vereen, of Moultrie,

Ga., and former president of the American Cotton Manufacturers Association, said:

"In the death of Samuel F. Patterson, we lose a great leader who was loved and respected throughout the industry."

Stuart W. Cramer, of the Cramerton Mills, Cramerton, N. C., said:

"A promising administration as president of the American Cotton Manufacturers Association was cut short."

New Caldwell Car Spotter

Said to represent the demand for a small, self-contained and compact motor-driven unit, a new vertical-capstan electric car spotter, called the Caldwell Car Spotter, has been announced by the H. W. Caldwell & Son Co., 1700 S. Western Ave., Chicago.

It seems that the name "Car Spotter" has been adopted because, in addition to being pulled, a car must be "spotted." One invariably speaks of "spotting cars." Thus, this name is more definitely descriptive of the principal use for the machine.

Although this company has been manufacturing various types of car spotters (or pullers) for more than 35 years, their latest machine differs from any of those previously produced in several points, the most important of these being, perhaps, its essential newness of design. Simplicity of operation is also claimed; and it is said, in addition, to sell at a very low price.

The manual method of moving and spotting cars, involving the use of two or three workers equipped with pinch bars, is known to be a procedure not only costly but also extremely slow—with virtually little or no real work possible during an especially rigorous period of weather.

A leading alternative method—the operation or hiring of a switch engine—is also very costly.

Twenty pounds pull on the capstan, it is asserted, will serve to move a ton of weight on a straight track—3 minutes time with this machine sufficing, usually, to do work that two men used to require 30 minutes to do not nearly so well.

It would appear that there were no end to the uses for this machine which apparently has been designed to fit in with the fast pace which modern industrial methods exact today. New applications seem to be springing into use at such a rapid rate that the reader should find it of interest to note that they include, besides pulling, and spotting cars, the moving of materials in lumber yards, steel mills, foundries, in logging work, and on the docks.

Many of these manifold uses are made possible, it is averred, through the 360 degree working radius of the capstan—a feature which further permits the reduction of hand labor necessary in various types of pulling and hauling jobs.

This car spotter seems to be quite simple to operate. One merely attaches one end of a rope or cable to a car—or other object to be moved—winds several turns of the other end around the capstan—and turns on the power.

U. S. Announces New Improved Automatic Dye

The U. S. Bobbin & Shuttle Co. has just placed on the market a new improved eye which they state answers every requirement for perfection in automatic weaving. Designed after years of study and experiment, this new eye has many features that make for better weaving.

In announcing the new eye, the company says:

"The front pitch of the eye has been increased so that the filling positively cannot ride the eye, and will get into the outside delivery eye on the second pick after the bobbin transfers. Experiments made under actual weaving conditions show that this improvement positively eliminates shuttle cut filling."

"The back safety catch has been lowered to prevent broken filling on the transfer in short draught shuttled. Loops over the top of the eye, and over the whole eye will pull off



and re-thread without breaking.

"Quick, positive threading is the inevitable result of these improvements, resulting in more production, better cloth, and satisfied weavers."

"The special U. S. developed features of open eye for soft filling, medium tension for rayon and regular cotton counts, and heavy tension for worsted and hard-twisted filling, are retained in this improved eye. Like the reliable U. S. Automatic, it will run any kind or count of filling,—cotton, rayon, worsted, wool, or jute."

"The U. S. Bobbin & Shuttle Company offers every mill an opportunity to test this improved eye without cost. A U. S. Shuttle made to your specifications and equipped with the new Improved Eye will be sent to any mill on request."

May Day Exercises.

Pacolet, S. C.—May day festival exercises by the physical education department of the Pacolet cotton

mills school were attended by more than 5,000 people. Miss Katherine Dozier is in charge.

Estimates North Carolina Curtailment At 26 Pc.

A survey of the operating time in North Carolina cotton mills has just been completed by Hunter Marshall, Jr., secretary of the Cotton Manufacturers Association of North Carolina. The mills reporting show an average of 26 per cent.

Mr. Marshall's statement relative to the survey says:

"Out of 102 mills reporting we find that the present production as compared with normal production is 74 per cent. This means a curtailment of approximately 26 per cent."

"It is interesting to note in this connection that on October 26, 1925, immediately after the curtailment due to shortage of water supply, we made a survey of the mills and found that out of 100 mills reporting the production at that time as compared with normal production was 67 per cent."

Manufacture of Fancy Goods—7

(Continued from Page 16)

the shed, while the weights hanging to the harness cords below depress the hooks which are not required to be elevated to form the design.

The hooks are operated by needles which extend horizontally through the system of hooks, a separate needles acting on each hook, and each needle in turn receiving its motion from the pattern cards on a cylinder provided for the purpose. A blank on the card which is in action propels the needle with its hooked wire back so that it will miss the action of the griff bar and remain down. A hole in the same card causes no action, for the needle slips through and therefore the hook attached to it does not clear the griff bar and is raised with it. Consequently the harness cord attached to the first hook remains down with its thread of the warp, while the harness cord attached to the second hook is lifted with its thread of the warp and interlacing of both threads with the filling results.

The number of wires used in a jacquard establishes the weaving capacity of the loom. The neckbands connected with the wires perform practically the same function as the harness shafts in the ordinary loom. The neck bands are attached to as many harness cords as there are repeats of the design in the woven fabric.

The comber board cares for the lower ends of the harness cords, each cord passing through a separate hole. The number of holes in the comber board commonly corresponds with the number of upright wires. The harness layout therefore includes the harness cords, the mails or eyes through which the threads are drawn and the weights attached to each cord below. The peculiar advantages of the jacquard loom make it suitable for an extensive range of fancy designs in all classes of woven fabrics.

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study and practice in treat-
ment of Sizing and finish-
ing problems.

Main Office and Plant, 35 Glenn St., Atlanta, Ga.

Fundamental Measurements in a Cotton Mill

(Continued from Page 15)

breakage has been reduced to around 25, but the price paid for this excellent running of the work has been entirely out of proportion to the results obtained. Speeds have been made very slow, twists high, and too expensive a cotton has been used. The spinner's job cannot be arranged so that she can run enough extra sides to compensate for the extra costs in cotton and low production. On the other hand, if the end breakage is very much over 40, the amount of work that a spinner has to do increases so rapidly that her task is reduced more than enough to compensate for the extra production or than is saved by the inferior cotton. This illustration shows that the fundamentals of machine operation can be measured and the effect of each on the cost of producing the yarn can be definitely measured in machine performance. In other words, if the elements that affect machine operation are measured with care, and the results balanced, it is no considerable task to strike a medium that will give the most economical standards.

Predicting Loom Stoppage.

For many years there has been a desire to obtain some basis upon which to predict the probable stoppage of looms of different constructions with different numbers of yarn. This work requires a scientific measurement of many variables. While the author is not prepared to say anything further on this subject, with his associates he believes that he has approached this basis rather closely. They have combined the variables that they have at their disposal into a series of curves by which they have been able to predict the loom stoppage on plain weaves, satens, and twills made from different constructions and of different yarns. They have taken the figures from a great many different mills and from a considerable amounts of test work, and find that the actual performance comes within the range of the curve to within a small degree of error. He is not prepared to discuss this further at this time until further tests have been made and additional data obtained.

Probably the one most important "machine" whose performance is to be measured is humidity. This question has been discussed so much at length in these meetings in the past that the author will not dwell on it.

Maintaining Standards.

We have just spoken about the establishment of standards of machine performance. Equally important is the maintenance of standards. If the author were to go to a mill and ask for standard figures, they would either be given to him or procured from the proper authority and he would be expected to believe that the mill was operating as per specifications. The author has had the pleasure of examining very carefully a good many cotton mills. The mills which he has examined are not poor mills but, he believes, the best in the business.

It is a very unusual thing to take speeds in a mill, for example, and find the range of the loom speeds within a range of 20 picks or to find more than 30 per cent of the speeds of the spinning frames within two turns of the standard. It is unusual to find variation in roll settings of not more than 1-16 inch or to find half of the machines fixed according to the mill's standards.

The author has seen in a mill that is considered well run a variation of 7 in the tension gears of the adjacent drawing frames that are supposed to be run exactly the same. He has seen a mill run on different hank rovings with the twist gears on the slubbers exactly the same on all hanks. He has seen a variation of 5 teeth in twist in the same spinning room on the same yarn. No comment is necessary in regard to conditions of which the above illustrations are quite typical, and which he thinks occur to a greater or less degree in all of our mills. All of these departures from standard give different results. For every result there is a definite cause, but, as has been said before, it is not the custom to search out accurately the causes but to cover them up with some "cure all" such as twist.

Extended Labor Organizations.

We have heard a great deal in the last few years about extending the task of the weavers or spinners or other help. Many men are enthusiastic over results that have been obtained, and as many more are as enthusiastic in their condemnation of all such systems. The author knows from personal experience that if the elements of manufacturing are measured, tremendous savings can be made.

This work can and should be done only with the most thorough preparation. He is very vigorously opposed to saddling any hand in a cotton mill with more work than can reasonably be done. He thinks that every task should be figured with approximately 20 per cent of rest time. He thinks very strongly that our cotton-mill help should receive as high wages as possible, and that whenever a job is extended the help should receive more money; and even on this basis the saving that can be made in manufacturing in our cotton mills is tremendous.

Take a very simple illustration. The looms on a certain construction of cloth that is made in many mills can be run with reasonable machine conditions so that there will not be more than 0.5 stop per loom per hour. We have run loom-stoppage tests in many mills on this construction of cloth and find that invariably the stoppage is between 1 and 2 stops per looms per hour. In other words, the weaver is piecing up from two to four times as many ends as she should be obliged to.

If the weaver is running as many looms as is considered good practice, it is very unfair to ask her to run more, even for more money. The work of preparation is not the weaver's but the management's; and, until the end breakage has been brought down reasonably close to the standard, it is unfair to ask the weaver to attempt additional work. Fundamental measurements on the looms can be made to measure not

only the amount but the causes of the difficulties and also the time that is required to overcome the difficulties.

One test showed that the average time to repair an end after the weaver had reached the loom was 44 seconds. It was found that in this tests over 2 minutes were required to repair the selvage ends that were broken. This was because the selvages were high and soft, and, when the end broke, it was pulled out of sight. The cause of the difficulty was not on the looms, but was from the fact that the press-rolls on the slashers were short. In this particular test, 45 per cent of the loom stoppage was caused between the spoolers and the slashers. The weavers should not be blamed for this. When this 45 per cent is reduced to a reasonable minimum, the work of the weaver will be made easier; and, when the work is made easier, the weaver can run more looms—and not until that time.

The task of laying out a job in a mill reasonably and accurately is very simple, provided that fundamental measurements have been made. Standards of expectancy of machine performance, as has been said, can be predicted very closely. Assuming that these standards have been reached (and no change should be made until they have), with known time measurements of the time required to do each element of the work and to walk, it is a question of simple arithmetic to determine how many machines an operative can tend.

Under the new methods of operating, the fixing and oversight become matters of planning and inspection rather than anything else. A fixer should not repair a machine after it has broken down, but before—with, of course, exceptions.

Previous papers before the Society have told of the functionalizing of foremen or overseers. Some industries have functionalized foremen, many of whom are operating in one department. While the author does not believe that this is practical in a cotton mill, he is sure it is practical to functionalize the duties of our overseers to a much greater extent than is now done.

Many mills today are actually measuring fundamentals in ways similar to those the author has outlined, with very satisfactory results. Some mills are actually running 48 to 100 40-inch looms to a weaver and a battery hand, depending on the cloth. This is in contrast to the old practice of 6 to 10 looms to the weaver on plain looms and the practice now followed in many mills of running 16 to 24 automatic looms to the weaver. The help getting more money with more rest time than under the old system and the mills operate at lower cost.

In some mills the spinners are running from 20 to 28 sides. This is in contrast to 8 to 12 sides as is the practice in many mills. In other mills the production has been increased from 15 to 30 per cent. In other words, if our mills adopt this more scientific measurement of the controlling factors, a very material reduction can be made in the

operating cost. At the same time the help will be rewarded with better working conditions and higher wages.

Therefore, our plea today is for a more scientific measurement of the fundamentals of our establishments and a logical combination of the fundamentals that have been measured. This has brought astonishing results in many mills, and it can in all mills making any kind of fabric.

Pacific Mills

Boston, Mass.—In banking circles it is understood that Pacific Mills enjoyed in April substantially greater earning power than was its monthly average for the first quarter of the year. Net earnings in April after all charges save federal taxes were approximately \$150,000 as compared with an approximate monthly average from January to March on the same basis of \$120,000.

It is interesting to note that Pacific is earning all of its interest charges, including those arising from the small item of bank borrowing still left, more than twice over. In April, for instance, net available for interest was \$256,000 against an interest charge of \$106,000, while for the first four months net available for interest was \$940,000 against an interest charge of \$426,000.

Pacific Mills sales in April were \$4,000,000 and for the first four months total \$15,000,000. Margin of profit in April was 3% against an average for first four months of 5.43%, demonstrating the practical effect of operating economies.

While the results of a textile mill for the early months of year are never an exact criterion of the final showing for the year, nevertheless the Pacific Mills returns afford considerable sunshine in what has commonly come to be accepted as a virtually hopeless situation. — Boston News Bureau.

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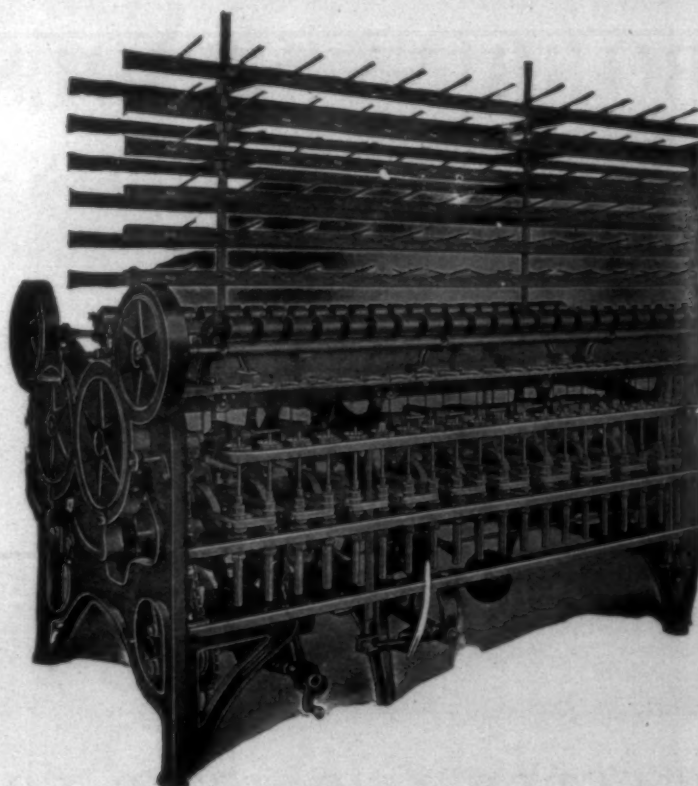


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The Story of Cotton

(Continued from Page 9)

in a month. Mr. Whitney was a gentleman, but not in good circumstances, and was then residing with a friend in the State of Georgia among the cotton plantations. Public curiosity was aroused with regard to the machine, and actually some of Mr. Whitney's neighbours broke into his workshop at night, and carried off the saw-gin before he had altogether finished it to his mind or secured it by a patent. The thieves, for so we must call them, immediately made a number of copies of it, with some little variations in order to evade the patent which Mr. Whitney immediately took out.

The saw-gin was found to supply exactly the wants of the cotton planters, it was the very thing they were in need of; but it seems as if inventors never were to be left in peace to enjoy the fruit of their ingenuity. Mr. Whitney tried to defend his rights by law, but the expense of the law suits almost ruined him. The States of North and South Carolina were honourable enough to purchase from him the license to use his machine, but a large portion of the money which he thus received, was swallowed up by law expenses in Georgia. He had to defend not only his property but his character, for persons were found who were mean enough to declare that he was not the inventor of the saw-gin.

In the year 1912 Mr. Whitney applied to Congress for a renewal of his patent. He pleaded that he had been tormented with litigation for eleven years before his rights were legally recognised, and that thirteen years out of the fourteen had passed with very little advantage to him, but a great deal to the nation, for his invention had enabled one man to do the work of a thousand. His friends declared that the saw-gin had been the means in a very short space of time of doubling the value of the American cotton plantations. Judge Johnson asserted that the increased wealth it brought might be estimated at 1000,000,000 dollars. But all that was said proved in vain. The planters of the Southern States opposed Mr. Whitney's petition so strongly that it was rejected in Congress, and he received no acknowledgment from his country for his service to her.

The saw-gin answers very well for every description of cotton except choice "Sea-land," whose long and delicate filaments it would be apt to tear. It does its work very quickly, one saw-gin cleaning about three hundred weight of cotton in the day.

When the vegetable fleece is cleared from the shell and seeds attached to it in its first growth, it is packed in order to be sent away. Formerly this was done in a very primitive fashion. Bags of strong sacking were fastened up with the mouth open, and while one man flung the cotton into the bag, another jumped in, and beat and trod it down till as much as possible was got into the bag. Now cotton is generally condensed into square compact bales by the powerful action of the hydraulic press. Cotton wool is indeed wonderfully compressible, though the squeezing has the effect of binding it together closely in knots and bunches. For each of the hairs of which it is composed consists of two delicate transparent tubes; and whereas the fibres of flax are straight tubes with a smooth surface, those of cotton are contorted and twisted one round the other, and when viewed through a microscope, present the appearance of a bamboo cane with knots. These contortions and twistings come on as the cotton pod ripens. During its early stages the tubes will be found untwisted and perfectly round, but as it grows this change takes place. It seems that the contents of the pod grow faster than the covering, so the hair is pressed on all sides, and its delicate tubes, instead of coming out straight, twine together like the strands of a piece of cord. This twisting makes the hair of cotton so valuable as a material of clothing. Hence it is that we can spin it into such fine threads, that cotton garments are so warm compared with linen. Hence also that when it is compressed it clings and knots together.

Far less pains have been taken in India about the cleaning and packing of cotton. The chief part of the crop is shipped for Europe from Bombay, Surat, or Calcutta. A hundred and eighty thousand head of cattle were at one employed in bringing bales of cotton to Bombay, but now railways transport them at least some part of the way. Cotton is generally brought down the Ganges to Calcutta in the rough native boats, which afford their freight little protection. As the voyage is generally made in the rainy season, the cotton is often a good deal injured. The cost of bringing it to England is greater than in the case of the American cotton. The freight of cotton wool from Georgia or Carolina to Liverpool is seldom more than at the rate of a halfpenny a pound; that from India is upon an average a penny a pound. Egyptian cotton costs about three farthings a pound. When they reach Lancashire, they will most likely be mixed together, or put with the product of some yet different place. One sort of cotton is seldom worked up alone. The cheap and short stapled cottons of India are generally willowed and carded with some of the American cotton, to make them work to the best advantage. Much of the success and profit of the manufacturer depends upon his thus blending together different materials and making one kind supply the defects of the other.

Let us now give our attention to what is going on in the Lancashire cotton-factory, probably in its upper storey. Huge bales of cotton fresh from the port of Liverpool have just been unpacked. But the vegetable fleece, once so light and downy, is all matted and tangled together in hard lumps and tufts. It is plain that these must be carefully unfastened and set loose, or the teeth of the cards would tear them asunder and utterly ruin the material. The former fleeciness and lightness must be brought back again, and every particle of dirt, every remaining seed must be cleared away. As the bales are opened, the contents of each are spread out one above

another, the cotton wool from one bale making one smooth, even layer. After being well mixed with a sort of rake, the mass of cotton is put by degrees into a machine called a willow, which thoroughly shakes and separates it. The operation is something of the nature of winnowing; and it has never been decided whether the name willow is a corruption of winnow, or whether it was taken from the willow-frames, on which in old times cotton used to be laid while it was opened and cleaned by beating with wands. There are several kinds of willows, some of them very powerful. The "conical willow" cleans and opens from twelve to fifteen thousand pounds of cotton in a week. The best sea-island cotton is not subjected to a willow at all, but picked apart by the fingers of women and children. The spread this precious down upon a sort of table, the top of which is an elastic net-work of cords, and then beat it with light rods or wands. The seeds and dust fall through the meshes, and the spring of the network helps to open out the knot.

The cotton, once more light and fleecy, is next subjected to the actions of the bating, or scutching and blowing machines. The object of this machine is thoroughly to loosen the filaments of the cotton which the willow or the human hand partly opened, and to carry off through fan sieves any dust which may possibly remain. The beating action which effects this is produced by flat bars of metal carried rapidly round, which strike the cotton fibres as they are brought before them upon the rollers. Formerly this work was done by women, who beat the cotton with smooth switches as it lay upon a frame of wood, but they found it a very fatiguing operation. It was unhealthy too, on account of the dust and fluff which loaded the air. Only very fine cotton intended for lace, in which case it is important to preserve the length of the staple, is now beaten by hand.

Our vegetable fleece is now considered perfectly clean as well as downy and light, so it is brought to the lapping or spreading machine, where a given weight of wool is spread over a surface of cloth of the proper proportion, and slightly compressed by a cylinder. After this it is lapped round a cylindrical roller, so as to be in a fit state for feeding the carding machine. It is a singular fact, and one which shows very forcibly the accuracy with which machinery works, that the weight of the cotton regulates exactly the fineness of the thread which is produced at last.

The next process, that of carding, is perhaps the most beautiful in the whole series. It is very clear that before any material can possibly be spun, that is before the fibres of it can be twisted together, these fibres must lie straight, and parallel with each other. But after the pulling apart, and the wilowing, and the bating, it may be imagined that the fibres of the cotton are lying in every direction. This would never do for spinning, so to straighten the fibre the cotton wool is made to pass between cards—that is brushes of wire set in leather, one of which is stationary, the other in motion. The wire teeth catch the fibres, and by their continual action separate and draw them into nearly parallel directions.

In former days, when the spinning-wheel was a piece of household furniture, carding was a domestic operation too. It was then effected by hand cards, things resembling brushes with handles, but having short wires instead of hairs. Women usually performed the work. Thus Wordsworth in his poem of the Brothers, describes a Cumberland vicar and his family, upon a July evening, employed on winter's work. He was seated upon the long stone seat beneath the eaves of his old cottage—

"Upon the stone
His wife sat near him, teasing matted wool;
While from the twin cards, toothed with glittering wire
He fed the spindle of his youngest child,
Who turned her large round wheel in the open air
With back and forward steps."

Of the "twin cards," one was placed on the knee and held firm with the left hand, and then the worker spreading the wool, whether animal or vegetable, in small quantities over the wire, drew the other card repeatedly over it with the right hand, till the fibres were sufficiently straight. Then the cardings were taken deftly off in a soft loose roll which was placed in such a manner as to be united in a continuous roving by the spinning-wheel.

This process was carried on century after century, in very nearly the same manner, both by the Hindoo woman outside her cottage, under the shade of the mango or the tamarind tree, and by her European sister at her fireside. The first great improvement in our own country was to fix one of the cards to a table, and suspend the other from the ceiling, so that the workman could move it without having to sustain its weight. These "stock-cards," as they were called, were made double the size of hand cards, and did twice the work. They were still in use in rural districts early in the present century, though they are now quite superseded by what are called cylinder cards. Mr. Lewis Paul invented cylinder cards in the year 1748, but they were not brought into use for some time. Mr. Peel, the father of calico printing, of whom we shall say more by and by, caught at the notion, and with the help of Hargreaves, the inventor of the spinning-jenny, carried it actually into operation. But ingenious as the device was, it did not answer well, and Mr. Peel laid it aside. Then Sir Richard Arkwright took it in hand, and made it a practicable machine, which fitted in with the rest of his schemes. This was about the year 1771. He did not take out a patent for it till A.D. 1775, when his whole system of cotton-spinning was matured, and by that time the secret of the cylinder cards had oozed out. We can hardly be surprised at this, for at that time Arkwright found it almost impossible to keep any invention secret in his mill. Almost all his workmen were bribed to act as spies and report everything new to people outside,

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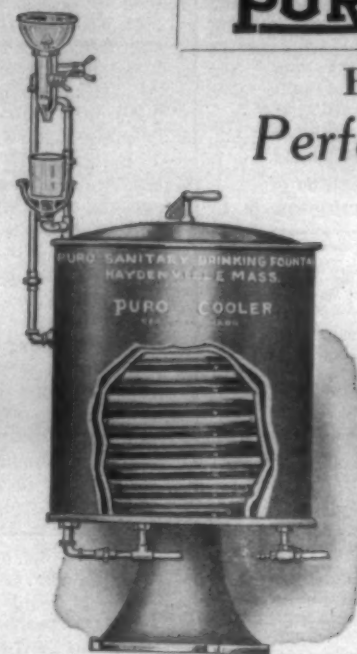


Fig. 8A

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who were on the watch to make what profit they could out of the information.

The carding machine as now in use, has the appearance of a cylindrical box into which cotton is given by the roller, the fleecy mass having been wrapped round that roller in the last process. The wooden cover of this box is a series of narrow panels. Lift up one of these panels, and you will see that each of them is a card, and that a cylinder covered with cards occupies the interior of the box. Between this central cylinder and the panel cards the mass of cotton is rapidly passed. But this is not all. At the opposite side of the box we find a second cylinder, also covered with cards, but instead of being placed horizontally they are wound spirally round it, so that the carded cotton is removed in a continuous fleece. This part of the machine is called a doffer. The cotton is slipped from this doffer by the action of a finely toothed metal comb, which, being worked against the cylinder by means of a crank, lightly beats or brushes off the cotton in a fine filmy fleece. Nothing can be more beautiful than the appearance of our vegetable wool at this stage of the manufacture. It looks like a soft snowy cloud. One fears to breath upon it, lest one should spoil the delicacy of its texture; touch it, and you scarcely feel anything between your fingers. This lovely, delicate fleece is gradually contracted as it passes through a deep funnel, and when next you see it, it has taken the shape of a loose roll or sliver. Next it passes between two rollers, and is flattened into the form of a ribbon. By this time it has really a good deal of tenacity, our snowy cloud has assumed a definite shape and substance, and in the end it coils up in a deep tin case.

No one who watches this machine attentively can help remarking how beautifully it does its work. The feeding cylinder supplies the cotton to the cards far more regularly and continuously than could be done by human hands. The cards within the cylinder subject our cotton wool to several cardings at every revolution of the wheel, and it is not necessary for the machine to stop that the carded cotton may be removed; the doffer strips it off, and that not in successive portions, but in one continuous fleece. This fleece again, which could not very well have been taken by hand cards from the doffer, is removed with exactness and speed by the action of the crank and the comb, an ingenious contrivance of Sir Richard Arkwright, which no doubt he did invent, though in one of the many law suits raised respecting his machines it was claimed for Hargreaves.

But carding is not the only operation which is employed to straighten the fibres of the cotton. Something must be done to them which no mere carding engine can do, something for want of which all cotton yarn before the days of Arkwright was uneven, and with some parts thicker than others. If the teeth of the card lay hold of a fibre by the middle they double it together, in which state it is unfit for spinning. This evil is corrected in the drawing-frame, a very important part of the spinning-machinery, for it does work which human hands could scarcely effect. This engine draws out and elongates the spongy slivers of cotton wool, and in so doing straightens the fibres, and lays them parallel to one another. Sir Richard Arkwright was the undoubted inventor and first constructor of the drawing-frame. I is perhaps the greatest proof of his skill in mechanics and his scientific genius; and so important was this machine in his eyes, that when any bad work was turned out in his cotton mills, his first exclamation to his workmen was "Mind your drawings."

The essential parts of the drawing-frame may be thus described. Each drawing head consists of three pair of rollers, the upper roller in every pair being smooth and covered with leather, the lower one fluted lengthways. The distance between the rollers is regulated by the staple of the cotton, the space left between them being very little more than the length of the fibres, which are subject to their action. The soft loose ribbons turned out from the carding machine are pulled through these rollers, and as the rollers revolve with different velocities, the fibres drag each other out, and extend each other to their full length.

The drawing room has however something further to do—it must equalize the consistency of the cardings. In spite of all the precautions which have been taken at every stage of the proceedings, one carding will yet be found to have more or less substance than another. No two will be exactly alike. But this will not do, for what the carding is when it leaves the drawing-frame that the yarn will be by and by. It has been discovered that the best way of correcting this irregularity, is by combining several of the carded ribbon, or card-ends as they call them in the factory, in one sliver, and it is also the work of the drawing-frame to accomplish this. Eight card ends are generally in the first instance brought to the first drawing head; they pass through the rollers and reappear as one sliver, no larger than any one of the eight. This process makes it eightfold more likely that our sliver is quite uniform. Four of these new slivers are put through the same process; now there are thirty-two chances to one of the equal character of the sliver. And this is done again and again, till the sliver contains portions of three hundred card ends. Indeed for very fine spinning the process is actually multiplied more than sixty thousand times.

(To be continued)

Guatemala Cotton Goods Market.

The value of cotton goods imported into Guatemala increased from \$4,121,000 in 1924 to \$4,912,000 in 1925, a gain of \$699,000 or 17 per cent. Of these total imports, the

United States supplied \$2,376,000 in 1924 and \$3,043,000 in 1925, Consul Philip Holland, Guatemala City, advises the Department of Commerce. On the other hand, the imports from England dropped from \$1,187,000 to \$937,000. The remainder of

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Theories of Dyeing

(Continued from Page 10)

the adsorption of compounds by charcoal, finely divided silica, etc. Substances such as the latter are capable of removing many organic acids, gasses, salts and colouring matters from their solutions without, apparently, definite rules. Animal and vegetable fibres resemble these adsorbents in the comparatively large surface they expose. The combination of adsorbent and adsorbed substance—the complex—as it is often termed, does not possess the properties of a chemical compound, nor is it formed according to the law of participation enunciated above. Adsorbed substances are believed to be held on the surface of the adsorbent more or less tenaciously. This certainly agrees with the known facts in dyeing that the dyestuff does not penetrate the fibre thoroughly and that varying degrees of fastness may be obtained even in cases where chemical action is improbable. It is in combination with other theories, however, that the adsorption theory has found most favour.

3. Colloidal Theory.

The most recent theory of dyeing has arisen with the development of colloid chemistry. This branch of physical chemistry deals with the study of substances giving solutions which do not dialyse readily and are often opalescent. Such a physical condition, of colloidal state, as it is termed, may be assumed by many substances which are non-colloidal, but, as a rule, complex animal, vegetable and mineral products exist in a stable condition as colloids. The colloidal theory of dyeing is based upon the particular properties which substances in this state possess, viz., the comparatively large-sized particles of substance in solution, some of which will not settle out as a sediment but will not pass through a filter paper, the ease with which these solutions may be coagulated by ionisable substances such as salts and certain colloids, the property of carrying an electrical charge, the enormous surface which they often present, besides many other properties not shown by electrolytes. As natural and artificial fibres are colloids, and as dyestuffs may assume a colloidal condition, dyeing may be a purely colloidal phenomenon. A deposit of dyestuff on the fibre may result from the mutual precipitating actions of colloids, or the colloidal fibre may adsorb the dyestuff. In this case the effect of a mordant (generally a colloid) on the fibre would be to increase the precipitating action of the fibre, or act as a surface on which precipitation takes place. It will be seen that a combination of the colloid and chemical theories offers a ready explanation of the most salient facts known in dyeing.

4. Electrical Theory.

Supporters of this theory conceive all dyeing phenomena as being brought about by partial or complete neutralisation of electrically charged fibres and dyestuffs. As previously mentioned, animal and vegetable fibres carry a negative

charge, while numerous colloids are also charged; when fibres come into contact with an oppositely charged colloid, electrical neutralisation results, with consequent precipitation of the mordant or dyestuff on the fibre. Of course the dyestuff need not necessarily be in a colloidal state; if it gives a true solution it will form electrically charged ions, so that neutralisation is still possible. However, this theory is of too recent an origin to have been given full opportunity of explaining satisfactorily most of the well-known facts.

Summary.

The complexity of dyeing phenomena indicates that none of the above theories can alone adequately explain the numerous facts that are known. Experiment has shown that chemical, physical and physico-chemical action may take place, and therefore it is only by a combination of these theories that a satisfactory explanation may be attempted.—Dyer and Calico Printer.

Bulletin on Distribution of Textiles

Statistics given in the Harvard Bureau's latest bulletin indicate that approximately 36 per cent of the cotton cloth distributed in the United States in 1924 was sold by retailers as piece goods, and that of this total between 80 and 90 per cent was purchased from wholesalers.

This is one of the results of the bureau's survey of the methods of marketing textiles. Other points discussed are the change in the size of orders received by several cotton mills from 1921-1925; the size of orders of cotton piece goods placed by 17 large department stores in 1924; the sales trends for cotton, wool, and silk piece goods and ready-to-wear merchandise from 1911-1925; and the total estimated market for cotton piece goods in 1924.

The information on billings summarized in this new bulletin was obtained from confidential reports submitted by 315 cotton mills or their selling agents, 177 woolen and worsted mills, 136 silk mills, and 15 rug and carpet mills. Supplementary data on the distribution of textile fabrics were secured from converters, wholesalers, jobbers, resident buyers, and department stores.

The tables in the bulletin show the quantities of woven goods sold to garment manufacturers and other cutters-up, industrial and institutional purchasers, wholesalers, and retailers; and also help to indicate the relative importance of the various agencies of distribution.

Widespread dissatisfaction exists among textile manufacturers and merchants regarding the prevailing conditions in their markets. New merchandising plans are being proposed continually. In the discussion of the merits of these plans, there always is need for as many facts as possible. Some of the facts bearing on the soundness of the various merchandising policies can be found in this new publication of the Harvard Bureau of Business Research.

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Grey Goods, Print Cloths, Twills, Sheetings, Pajama Checks, Arcadia Mills,
Spartanburg, S. C., Clinton Cotton Mills, Clinton, S. C., Hermitage Cotton Mills,
Camden, S. C., Mills Mill, Greenville, S. C., Osage Mfg. Co., Bessemer City, N. C.

Cotton Goods

New York.—The cotton goods markets were somewhat steadier last week due to the increase in curtailment by the mills throughout the country. The business placed amounted to a fairly large volume in the gray goods division. Prices on print cloths and sheetings were slightly weaker in spots, but are expected to stiffen as the effects of curtailed output are felt.

Sales of heavy cotton goods, including duck, were reported on a low basis, but mills are reducing output and many of them declined business offered at prices which failed to show a profit. An increasing business in 4-4 branded bleached goods was reported and prices moved up a quarter cent after good sales. Other goods were on the same price basis prevailing the week previous. A slight increase in the amount of gingham sold for fall was reported.

Handlers of finished goods reported that more business was done during the week than the preceeding week, but that prices continued very unsatisfactory. Business in practically all lines slowed down toward the end of the week, due to the closing of the markets for a two day holiday.

A number of mills making tire fabrics have recently sold enough goods to keep them busy for some time to come. With the tire manufacturers, no increase in operations is reported and it is not expected that they will require any great yardage for the present.

Various buyers tried to locate goods at the price and did not succeed. Business was done at 9½c in a small way. Spots of 64x60s sold at 7½c and 68x72s at 8½c. A few 60x48s were taken at 6½c, 8.20-yard 5c, 80 squares 10½c, 27-inch 64x60s 5 1-16c. Mills held 6.40-yard at 6½c, 7.15-yard 5 1-16c, 6.60-yard 6½c, 64x56s 7½c.

There was a report of fair business in 40-inch 2.85-yard at 11½c spot. Small quantities of 6.15-yard spots sold at 6c, 36-inch 5-yard 7c, 36-inch 5.50-yard 6½c, 37-inch 4-yard 8½c, 40-inch 3.75-yard 8½c. Buyers appeared interested only in spots with contract deliveries neglected.

The change over from 50x42s combed yarn serims to 48x40s is reflected in the comparative neglect of the former. During the week good quantities of the 48x40s are reported to have sold at 10½c, which is ¼c under the last price. While mills can deliver spots and next week there are several other mills which are getting ready to run on the construction. To several observers there is danger that the construc-

tion, already cut, will be further reduced for price reasons.

The warp sateens are being sold in a number of new construction, converters to the lining trade finding an incentive to get out special ones and out of the regular classification. They are finding mills ing to co-operate, giving them the benefit of the close prices which now obtain on standard constructions.

Tarding in small lots was the rule in the Fall River print cloth market for the week, with buyers holding to the hand-to-mouth idea of filling their needs. Delivery is spot and nearby in every instance, in wide and narrow prints continues very quiet, the bulk of trading being in sateens, twills and 36-inch low counts. Some sateens and twills have been sold for delivery running through July. Sales are estimated at 70,000 pieces. The absence of any sizable contracts is particularly noticeable in the market, buyers maintaining a very conservative policy in this respect. Mills are adverse to operating on constructions for which there is very little call and in view of this attitude there has been no great accumulation of goods.

Cotton goods prices were quoted as follows:

Print cloths, 28-in., 64x64s.	5½
Print cloths, 28-in., 64x60s.	5½
Print cloths, 27-in., 64x60s.	5½
Gray g'ds., 38½-in., 64x64s.	8
Gray goods, 39-in., 68x72s.	8½
Gray goods, 39-in., 80x80s.	10½
Brown sheetings, 3-yard.	12½
Brown sheetings, 4-yard.	10
Brown sheetings, stand.	13½
Ticking, 8-oz.	20 a21
Denims.	15½
Staple ginghams, 27-in.,	9
Kid finished cambries.	8½a 9
Dress ginghams.	12½a16½
Standard prints.	9½
Yarns	

British Exports of Cotton Cloth Decline.

Exports of cotton piece goods from Great Britain during the first quarter of 1926 amounted to 4,425,756,000 square yards, a decrease of 115,936,100 square yards or 9 per cent, compared with the like period of 1925. Consular clerk Alfred Nutting, London, advises the Department of Commerce. The value of the exports during the current year was £35,438,588, a decrease of £7,840,531 or 18 per cent from the 1925 figure. Next to British India, the heaviest decrease in these exports was to the United States, where the percentage decline reached nearly 60 per cent.

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The Yarn Market

Philadelphia, Pa. — Trading in yarns failed to show any revival during the week. There were some inquiries for fairly large lots for future delivery but in most cases sales failed to materialize because of the difference between buyers and spinners on prices. A few mills report recent sales of enough yarn to keep them busy for six to eight weeks ahead. Curtailment showed a further increase during the week. Southern spinners are apparently committed to the policy of operating on only orders and at prices which show a profit and are not piling up stocks. Prices remained on practically the basis as during the previous week. Some sales at concessions were reported in various quarters of the market. Spinners prices generally were well above those quoted here.

Due to the fact that Saturday and Monday were to be generally observed as holidays in the markets, business practically ceased the latter part of the week.

Buyers continued slightly more interested in carded weaving yarns than in the knitting numbers. Combed and mercerized yarns were dull, with only a slight demand evident and at very unsatisfactory prices. Quotations published in this market, quoted below, were generally regarded as being merely nominal.

Southern Two-Ply Chain Warps.		
8s	29	a29 1/2
10s	30	a30 1/2
12s	30	a31
14s	32	a32
16s	32 1/2	a34
20s	36	a36 1/2
24s	37	a37 1/2
26s	39 1/2	a40
30s	50	a52
40s	57	a58
40s ex.	67	a
50s		

Southern Two-Ply Skeins.		
8s	28	a
10s	29	a
12s	30	a
14s	31	a
16s	31 1/2	a32
20s	33	a33 1/2
24s	35 1/2	a
26s	36 1/2	a
30s	39	a40
36s	47	a48
40s	49	a50
40s ex.	56	a58
50s	65	a66
60s	74	a75
Tinged Carpet	3 and 4-ply	26 a27
White Carpet	3 and 4-ply	30 a31

Part Waste Insulated Yarn.		
6s, 1-ply	23	a
8s, 2, 3 and 4-ply	23 1/2	a24
10s, 1-ply and 3-ply	25	a
12s, 2-ply	26	a
16s, 2-ply	28 1/2	a
20s, 2-ply	30	a31
26s, 2-ply	35 1/2	a36
30s, 2-ply	37	a38

Duck Yarns—3, 4 and 5-ply.		
8s	29	a
10s	30	a
12s	31	a
16s	32	a
20s	33 1/2	a

Southern Single Chain Warps.		
10s	30	a
12s	30 1/2	a
14s	31	a
16s	31 1/2	a32
20s	32 1/2	a33
24s	35	a36
26s	36 1/2	a37
30s	39 1/2	a40
40s		a51

Southern Single Skeins.		
6s	29	a
8s	29	a
10s	29 1/2	a
12s	30	a
14s	30 1/2	a31
16s	31	a32
20s	33	a
22s	34	a
24s	35	a
26s	36 1/2	a
30s	40	a

Southern Frame Cones.		
8s	28 1/2	a
10s	29	a
12s	29 1/2	a
14s	30	a
16s	30 1/2	a
18s	31	a
20s	32	a
22s	32 1/2	a33
24s	33 1/2	a34
26s	34 1/2	a
28s	35 1/2	a
30s	36	a35 1/2
32s	36	a36 1/2
40s	48 1/2	a

Southern Combed Peeler Skeins, Etc.—Two-Ply.		
16s	51	a
20s	53	a
24s	58	a
26s	63	a
40s	65	a67
50s	70	a72
60s	75	a76
70s	85	a88
80s	1	05a

Southern Combed Peeler Combs.		
10s	40	a
12s	41	a
14s	42	a
16s	43	a
18s	44	a
20s	45	a
22s	46	a47
24s	49	a
26s	49 1/2	a
28s	50	a
30s	53	a
32s	54	a
34s	56	a57
36s	59	a
38s	60	a
40s	61	a
50s	69	a70
60s	75	a76
70s	85	a88
80s	1	05a

Eastern Carded Peeler Thread—Twist Skeins—Two-Ply.		
20s	48	a
22s	49	a
24s	50	a
30s	54	a
36s	57	a
40s	61	a
45s	68	a
50s	73	a

Eastern Carded Cones.		
10s	35	a
12s	36	a
14s	37	a
16s	38	a
20s	41	a

April Exports Lower.

Exports of cotton manufactures in April showed a decrease in value as compared with the 1925 month, the figures being \$13,138,000 and \$14,284,000, respectively, according to statistics announced by the Department of Commerce. Other statistics show that imports of raw silk and of rayon increased.

Cotton cloth exports last month totalled 52,394,000 square yards, valued at \$7,842,000, compared to 52,377,000 square yards, valued at \$8,241,000, in April, 1925. Shipments of duck increased in quantity but decreased in total value, while of other cotton cloths, exports of unbleached, bleached, and piece dyed increased and shipments of printed and yarn dyed decreased. Exports of raw cotton increased in quantity but decreased in total value.

Imports of raw silk last month totalled 5,248,000 pounds, valued at \$32,453,000, compared to 4,108,000 pounds, valued at \$25,927,000, in April, 1925. Receipts of silk waste fell off slightly. Imports of silk manufactures showed a gain.

Imports of rayon last month were valued at \$1,131,000, compared to \$853,000 in April, 1925.

Receipts of linen handkerchiefs increased in April.

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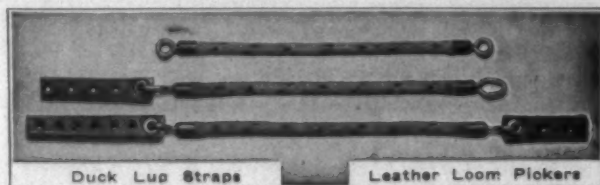
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WANT position as master mechanic. Twelve years experience and can give good references. No. 4886.

WANT position as superintendent of yarn mill, white or colored work. Have had 20 years experience on knitting yarn, mostly colored. Have held present place 12 years. Married, have family. Good references. No. 48887.

WANT position as roller cover. Have had 20 years experience in this work and can produce excellent results. Good references. No. 4888.

WANT position as designer or assistant superintendent in fancy goods mill. Graduate of textile college, 3 years in various departments. Good references. No. 4889.

WANT position as cloth room overseer by young man 26 years old, 6 years experience in dimity and fancy cloths. Excellent references. No. 4890.

WANT position as overseer spinning. Experienced and reliable man who can handle spinning room in efficient manner. First class references. No. 4891.

WANT position as overseer of weaving. Experienced on wide variety of looms and can keep room producing on economical basis. A-1 references. No. 4892.

WANT position as superintendent, carder or carder and spinner in yarn mill or plain weave mill. Now employed as spinner. Age 36. I. C. S. graduate. Good references. No. 2893.

WANT position as overseer weaving. Practical man of long experience and can get excellent results. First class references. No. 4894.

WANT position as overseer large card room or as overseer carding and spinning. Age 26, I. C. S. graduate in carding and spinning. Now employed as carder and spinner. Been on present job 4 years and will guarantee satisfaction. Could handle place as superintendent of small yarn mill. No. 4896.

WANT position as superintendent or manager. Practical mill man with excellent training in good mills. Would appreciate opportunity of corresponding with mill needing high class man. No. 4897.

WANT position as superintendent or overseer weaving in large mill. I. C. S. graduate. Qualified to handle either job. Good references. No. 4898.

WANT position as overseer weaving. Plain or fancy goods. Fifteen years experience, mainly on fancy goods. references. No. 4899.

WANT position as overseer weaving on sheetings, print cloths, drills, osenaburgs, bagging, toweling, plain white satins or mohair. Have had 21 years in weaving, 5 years as overseer, 8 years as fixer and 8 as night overseer. Age 39, I. C. S. graduate. Good references. No. 4900.

WANT position as master mechanic or electrician. Experienced on both steam and electric drive, and can give satisfaction. Good references. No. 4901.

WANT position as overseer weaving, either plain or fancy work, and am experienced on dobby and Jacquard work. Now employed on job I have run satisfactorily for 3 years, but wish another place. No. 4902.

WANT position as overseer weaving. Prefer Southern mill. Now employed as weaver, 5 years on present job. Am giving satisfaction but wish larger place. Experienced on drills, twills, ducks, satens, sheetings, towels, staple and fancy ginghams. Twelve years as overseer, age 28. Married, sober, reliable and good manager. No. 4903.

WANT position as superintendent or overseer spinning. Familiar with tire ducks, cords, hosiery yarns and ply yarns. Can give best of references. No. 4904.

WANT position as superintendent of yarn or cloth mill. Long experience in good mills and would handle either place in satisfactory manner. Good references. No. 4905.

WANT position as overseer weaving. Long practical experience and can operate all makes of looms on efficient manner. Best of references. No. 4906.

WANT position as overseer carding. Would accept night job. Now employed as second hand. Age 35, and can give excellent references. No. 4907.

WANT position as overseer carding or second hand in large room, or night carder. Give first class references from present employers. No. 4908.

WANT position as overseer carding or spinning, or both. Practical, experienced man who has long record of satisfactory service. No. 4909.

WANT position as second hand in spinning. Have had 6 years in spinning. Age 21, married and can get results with help. No. 4910.

WANT position as roller coverer. Mill job preferred. Will go anywhere in South. High class workman. Best of references. No. 4950.

WANT position as overseer carding; 25 years experience, age 47, married and have family. Reliable, practical man who can produce results. Now employed. Excellent references. No. 4911.

WANT position as superintendent, or overseer carding or spinning. Have long experience as overseer and understand office work. Good references. No. 4912.

WANT position as overseer carding; 14 years experience. Making good on present job but have good reasons for changing. No. 4913.

WANT position as superintendent of small mill, or spinner in large mill. Long experience in good mills. Can come on short notice. First class references. No. 4914.

WANT position as superintendent. Now have superintendent's place, but wish better position. Experienced, reliable man of good habits and am first class mill man. Good references. No. 4915.

WANT position as bookkeeper, shipping clerk or office man. Age 28 and have had good experience. First class references. No. 4916.

WANT position as overseer carding or spinning, prefer spinning, but am good carder. I. C. S. course in carding and spinning; 19 years experience. Now employed but wish to change. Excellent references. No. 4917.

WANT position as superintendent. High class, educated man who has held high position with important mills. Now employed, but would like to correspond with large mill needing superintendent or manager. No. 4918.

WANT position as overseer of weaving. My experience covers wide range of fabrics and I can get quality production at the right cost. Excellent references from past and present employers. No. 4919.

WANT position as overseer carding and spinning or superintendent. Have had long experience as carder and spinner and as second hand and overseer. Competent reliable man of good habits. Good references. No. 4920.



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Washburn
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Whitin Machine Works.

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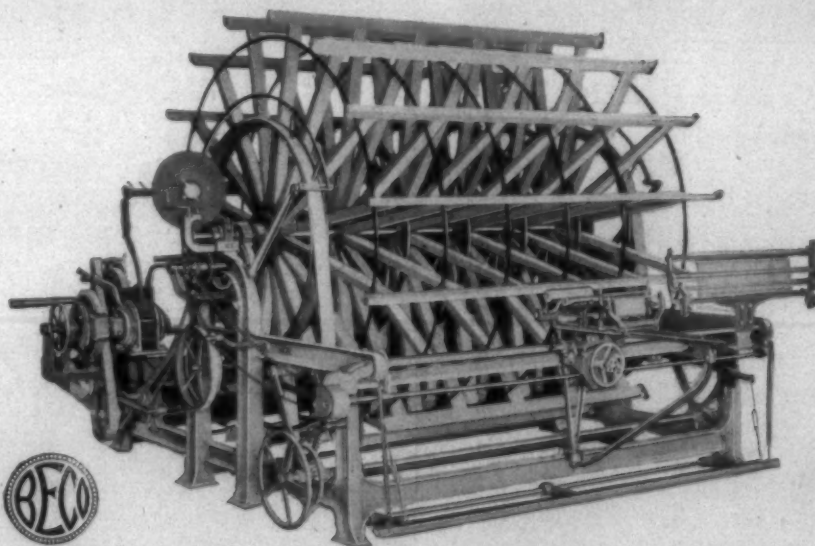
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